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Soviet Grain Production: 1940-1950

By V. KATKOFF*

THERE is no doubt that in 1940 Soviet agriculture had reached the point of expansion in grain acreage. The 1940 grain harvest was 118,800,000 metric tons, and the 1941 grain plan called for 129,500,000 metric tons on the same acreage as in 1940.[1] This increase in grain production was expected through better technology, increasing mechanization, and improving scientific soil practices. Perhaps mechanization was the main urgency in Soviet agriculture in 1940, for even in the Spring of 1941 many collective farms were dependent on their own simple equipment in such heavy and important tasks as plowing, sowing and harvesting. The plan, which was interrupted by the war, called for a greater number of machine-tractor stations (M.T.S.) without a further increase in the number of the collective farms.

Although the total Soviet grain acreage was more or less fixed, there was an expansion in perennial grasses and in "technical crops." The term "technical crops" is used by the Russians to identify industrial crops such as sugar beets, fibers and all other industrial crops. The 1941 plan called for an increase of 4,500,000 hectares for general uses on the collective farms in the Baltic countries, and an increase of 650,000 hectares in Siberian regions, most of which were intended to be used for winter crops.[2]

It is also interesting to note that while the total Soviet grain acreage was being stabilized, there was a realocation of grain production—which moved from the western regions of the Union to the eastern regions. During 1936-38 the Ukraine, the bread basket of old Russia, produced on the average 6,577,000 metric tons of the consumption grain, while the Russian Soviet Federal Socialist Republic (R.S.F.S.R.) during the same period produced on the average 18,850,000 metric tons, or almost three times that of the Ukraine.[3]

* Ohio State University.

[1] *Pravda*, February 26, 1941.

[2] *Izvestia*, February 5, 1941.

[3] N. I. Voznesenskii, *Victory of the Socialized Agriculture* (Moscow: 1947) p. 57.

TABLE I—PERCENTAGE OF GRAIN PRODUCTION OF THE MOST IMPORTANT GRAIN-PRODUCING REGIONS, 1940

Region	*Percentage of total*
Ukraine	23.0
Volga River regions	12.6
Siberia	11.7
North Caucusus	10.6
Ural	9.7
Kazak S.S.R.	3.4
Others	29.0
TOTAL	100.0

According to the above table[4] the eastern regions (the Ural, Siberia and the Kazak S.S.R.) produced, in 1940, 25 percent of the total grain crop. The greatest increase in grain production during the 1936-40 period took place in Siberia, the Ural, the Kazak S.S.R. and in Central Asia. This policy of expanding grain production into the eastern regions was based on the fact that Siberia has a tremendous amount of virgin land—approximately 14,000,000 hectares which, with some improvement, can be put into agriculture.[5] However, this potential expansion in eastern agriculture was moving at a slow tempo.

According to the table below,[6] the eastern regions are the grain-producing regions. Over 80 percent of the total sown acreage is in grain and the spring wheat takes almost 50 percent of the total grain acreage. Technical crops are more important in Central Asia and the Kazak S.S.R. than in other regions. Truck crops are evenly distributed throughout the eastern parts and fodder crops and perennial grasses are second in importance to grain acreage. In 1940 Western Siberia was ahead of the other eastern regions in grain production, especially in spring wheat and in livestock. Central Asia and the Kazak S.S.R. produced a large percentage of the grain for its own livestock and in spring wheat but, most important, it was the center of cotton production. Eastern Siberia specialized in grain, a large share of which was allocated to spring wheat. On the whole all the eastern regions specialized in spring wheat. The centers of winter wheat were in the southern parts of the Union, North Caucasus, Transcaucasus and Central Asia. These regions in 1940 had 86 percent of the total winter wheat acreage, with 88 percent of the total winter wheat production.[7]

[4] *Ibid.*, p. 91.

[5] *Izvestia*, May 9, 1940.

[6] *Soviet Agronomy*, No. 11, 1947, p. 55.

[7] E. S. Karnouhova, *Geographic Changes in the Basic Branches of the Soviet Agriculture During the Last 30 Years* (Moscow: 1948) p. 110.

TABLE II—TYPE OF LAND USES AND THE AREA IN THE EASTERN REGIONS, 1940
(*in hectares*)

LAND USES	Western Siberia	Ural	Eastern Siberia	Central Asia and Kazak S.S.R.
Total sown area	12,601,000	12,640,000	3,946,000	12,119,000
Grain:	10,658,000	10,522,000	3,497,000	8,825,000
Spring wheat	5,906,000	3,888,000	1,568,000	4,054,000
Winter wheat	53,000	18,000	3,000	1,385,000
Technical crops	468,000	484,000	56,000	1,798,000
Truck crops	417,000	529,000	170,000	310,000
Fodder crops	1,058,000	1,104,000	223,000	1,186,000
Perennial grass	703,000	755,000	100,000	774,000

In 1940 the eastern regions raised 27.5 percent of the total Soviet Union sown acreage, 30.3 percent of the total grain acreage, and 60.2 percent of the total spring wheat acreage, but only 13.0 percent of the total winter wheat acreage. It is obvious that in 1940 the eastern regions were the major growers of spring wheat.

TABLE III—PRODUCTION OF GRAIN IN THE EASTERN REGIONS, 1940

Region	*Metric tons*
Ural	10,460,000
Western Siberia	8,830,000
Eastern Siberia	3,880,000
Kazak S.S.R.	3,620,000
TOTAL	26,790,000

The above tonnage represents 22.5 percent of the total Soviet grain production in 1940.[8] By including Central Asia, which grows a small percentage of grain, the total grain production in all the eastern regions could be estimated at 25.0 percent of the total Soviet production, which was produced on 30.3 percent of the total Soviet acreage.

According to the Soviet Census of 1939, the Ural, Siberia (except the Far East),

and the Kazak S.S.R. had a population of 27,357,000 persons.[9] About 15,300,000 of these were located on farms.[10] Thus, the urban population consisted of about 12,000,000 persons. Approximately 50 percent of the total grain acreage was used for spring and winter wheats and, if we assume that the total production of wheat was approximately 50 percent of the entire grain production, then the total wheat production may be estimated at approximately 13,395,000 metric tons. This is gross output from which payments to peasants, payments for borrowed seeds and various funds such as fund for seeds, funds for feed and all other funds which are established by the general meeting of the collective farm, must be subtracted. If we eliminate as negligible the amount of wheat sold directly from the collective farms to various users, the amount of wheat which the government received in the form of required deliveries to the state and in the form of payments in kind to the machine-tractor stations is estimated at 26.4 percent of the total wheat production.[11] So, out of an estimated 13,395,000 metric tons of wheat produced in 1940, only 26.4 percent or approximately 3,536,000 metric tons was available for the urban population living in the eastern parts of the Soviet Union. Assuming a per capita consumption which is cited by the Soviet sources as a standard norm of 270 kilograms, then the minimum requirement of the urban population is estimated at 3,240,000 metric tons.[12] From this analysis it is safe to assume that in 1940 the eastern regions were as a whole self-sufficient in the minimum grain requirements but, because of their huge territory, different climatic conditions, poor trans-

[8] S. Demidov, *Rehabilitation and Development of Soviet Economy During the 1946-50 Plan* (Moscow: 1947) p. 63.

[9] S. S. Balzak, V. F. Vasutin, Y. G. Feygin, *Economic Geography of the U.S.S.R.* (Moscow: 1940), p. 401.

[10] N. I. Voznesenskii, *Victory of the Socialized Agriculture* (Moscow: 1947), p. 48.

[11] M. P. Altunin, in his *Practical Application of General and Agricultural Statistics* (Moscow: 1947), p. 128, gives the following breakdown, by percentages, of the distribution of grain on the collective farms: required delivery to the state, 9.29%; payments in kind to the M.T.S., 17.11%; payments for borrowed seeds, 0.04%; fund for seeds, 9.37%; fund for feed, 9.98%; payments to the members for their labor, 25.48%; sold by the collective farm, 28.73% (total, 100.0%).

[12] I. P. Laptev, *Relocation of Socialist Grain Production* (Moscow: 1940), p. 38.

portation and inefficient distribution facilities, many regions within those boundaries were deficient in bread grain.

The Ural is not self-sufficient in bread grain. A large percentage of its grain acreage is devoted to grain needed for livestock. To supplement its shortage of bread-grain the Ural imported some from Western Siberia. Eastern Siberia, too, is not self-sufficient in grain, and imported grain from the European parts of the Union. Only Western Siberia was self-sufficient in grain, and in 1940 this region exported 1,639,000 metric tons of grain.[13] Central Asia and the Kazak S.S.R. are deficit grain regions and imported the needed grain from other parts of the Union.

The Nazis attacked the Soviet Union on June 22, 1941, and the peacetime development of the eastern regions ceased. A mass migration of people and equipment began to flow into the eastern regions. Millions of people moved eastward. Hundreds of enterprises, factories and plants moved in. With these enterprises came workers and evacuees and the urban population of all the eastern regions increased from 15,600,000 in 1939 to 20,300,000 in 1943.[14]

The total Soviet population in 1940 was 193,000,000, of which 132,000,000 was rural.[15] The Germans occupied the territory where 88,000,000 persons had lived.[16] But only 75,000,000 persons were taken over by the Nazis in their advance during the first five months of war.[17] Thus, approximately 10-13 millions of people had moved eastward, demanding food, clothing and shelter from the local resources, which in many parts was not sufficient for even the local population. And it is interesting to note that, in spite of war, the birth rate was high and the total Soviet population in 1942 was estimated at "not less than 130,000,000" and the number of persons depending on rationing in 1942 was estimated at 76,800,000.[18] This left approximately 53,200,000 for the armed forces and the peasants who were exempt from the rationing.

During the first two years of World War I, Russia lost 12,600,000 hectares of total sown acreage to the Germans. In 1914-1917, Russian grain production was reduced by 28.3 percent.[19] But in World War II the most productive land, which was practically intact in Russian hands during the first World War, was occupied largely by the Germans.[20]

TABLE IV—Occupation of Agricultural Land by the Nazis: Autumn, 1942

Soviet Agricultural Land	*Percentage of Total*
Sown acreage	41
Grain acreage	38
Winter wheat and corn acreage	75
Barley and buckwheat acreage	66
Truck crops acreage	50

About 50 percent of most productive land was occupied by the Germans. They occupied 107,000 collective farms or 44 percent of the 1940 total number of all collective farms.[21] So, at the beginning of 1942 the Soviet Union relied on the production of 135,400 collective farms. The Soviet press states that in 1940 an average collective farm had 342 members of which 149 were able-bodied workers over 16 years of age.[22] Based on the above data, the total collective farm population at the beginning of 1942 could be estimated at 46,307,000,

[13] N. N. Baranovskii, *Economic Geography of the U.S.S.R.* (Moscow: 1947), p. 215.
[14] N. I. Voznesenskii, *Economy of the U.S.S.R. During the World War II* (Moscow: 1948), p. 48.
[15] *Ibid.*, p. 14.
[16] *Communist Tadzhikstana*, November 7, 1947.
[17] *Pravda*, December 18, 1941.
[18] N. I. Voznesenskii, *Economy of the U.S.S.R. During the World War II* (Moscow: 1948), p. 26, 123.
[19] *Vostochno-Sibirskaia Pravda*, February 11, 1945.
[20] E. S. Karnouhova, *Productivity of the Collective Farms During the World War II* (Moscow:1947), pp. 49-50.
[21] *Socialist Agriculture*, October 1945, p. 6.
[22] *Socialist Agriculture*, March-April 1943, p. 12.

of whom only 20,175,000 were of working age. The total farm labor force was reduced by 7 percent by entrance of farmers into the armed forces.[23] Thus, in 1942 there were approximately 18,763,000 able-bodied peasants working on the farms.

To overcome the reduction in grain production and a shortage in the farm labor, equipment, seeds and horses, the Soviet government, soon after the beginning of the war, issued a decree by which collective and state farms were ordered to increase their winter grain by 1,600,000 hectares.[24] To comply with the order, the Novosibirsk Oblast increased its millet acreage from 95,000 hectares in 1940 to 190,000 hectares in 1941, or a 100 percent increase in a single crop.[25] Other regions in Eastern and Western Siberia and in the Far East increased their winter crops, mostly millet. The Ural, on the other hand, did not increase its winter grain acreage. The influx of a large industrial population and expansion in war production were the obstacles. Instead, the Ural increased its vegetable acreage. On the whole, Siberia, Central Asia and the Kazak S.S.R. did increase their winter grain acreage for, at the beginning of the war and by government orders, all regions were put on a self-sufficiency basis and import and export trade between the regions ceased.

To sum up, 1941 was on the whole a good year. Spring and winter crops in unoccupied regions were good and were harvested on time. The enthusiasm with which the peasants responded to the national need was high and deliveries of grain to the state were fulfilled by most of the collective farms. By the Spring of 1942 collective farms had increased their "technical crops" by 230,000 hectares and by Autumn of 1942 winter grain crops were increased by another 2,600,000 hectares.[26] Thus, the total grain acreage in unoccupied regions in 1942 was 18 percent over that of 1940 and this percentage varied from region to region.[27]

TABLE V—Variation in Increased Grain Acreage

Region	*Percentage of Increase in Winter Grain*
Far East	30.0
Western Siberia	24.5
Central Asia	23.0
Kazak S.S.R.	17.0
Eastern Siberia	9.5
Transcaucasus	6.6

In 1942 the Ural, Siberia and the Kazak S.S.R. produced almost one half of all Soviet grain.[28] However, deliveries to the state were not as efficient as they were in 1941. Lack of transportation and shortage of labor and the general relaxation of discipline on the part of peasants were reported in Chelyabinsk and Omsk oblasts, the Altai Krai and Kazak S.S.R. Many European regions were unable to deliver the government-required grain. On the other hand, in Central Asia the yield of the 1941 harvest was good and on time, even though Central Asia increased its winter grain acreage from 1,336,000 hectares in 1940 to 1,552,000 hectares in 1942, which was done with reduced labor force and equipment.[29]

The crux of Soviet agriculture has always been grain, and its importance in the Russian diet cannot be overemphasized. In 1942 this problem became more acute than ever, and to

[23] E. S. Karnouhova, *Productivity of the Collective Farms During the World War II* (Moscow: 1947), p. 8.
[24] N. I. Anisimov, *The Victory of Socialist Agriculture* (Moscow: 1947), p. 100.
[25] *Socialisticheskoe Zemledelie*, September 7, 1943.
[26] N. I. Anisimov, *The Victory of Socialist Agriculture* (Moscow: 1947), p. 100.
[27] *Ibid.*
[28] E. S. Karnouhova, *Productivity of the Collective Farms During the World War II* (Moscow: 1947), p. 53.
[29] *Socialist Economy*, April 1942, p. 24.

supplement the scarce grain diet the government encouraged production of vegetables, especially potatoes. An analysis of the diet of a peasant with a given income before the first World War indicates that vegetables accounted, on the average, for 85 percent of the caloric intake.[30] That is why M. I. Kalinin, the President of the Soviet Union said to the Russian people: "If you want to participate in the victory over the Fascists, you must plant as many potatoes as possible."[31]

TABLE V—Soviet Vegetable Hectares, 1940-1944

Region	1940	1942	1944
Central regions	2,656,000	.....	2,979,000
Siberia	575,000	828,000	.....
Ural	496,000	679,000	.....
Volga River regions	395,000	.....	493,000
Central Asia and Kazak S.S.R.	213,000	281,200	.....
Transcaucasus	95,000	.....	106,000

Thus, between 1940-1942 the eastern regions increased their vegetable crops by 39.1 percent.[32] Other regions increased their vegetable acreage too, especially potatoes. At the same time victory gardens were organized by the urban population, and by 1942 there were 818,000 hectares of victory gardens, and 1943 it increased to 1,016,000 hectares. Of the total victory garden acreage, potatoes took 150,000 hectares in 1942 and 243,000 hectares in 1943.[33] Thus, during 1941-1942 there was a readjustment in Soviet agriculture. The winter crops were increased in acreage and vegetables, especially potatoes. On the other hand, acreage under the spring crops declined. On the whole 1942 was a confused year. New crops were introduced in regions where they had not been grown before. The scientific methods were neglected and the principle of comparative advantage was set aside; as a result, there were low yields and production of major crops, especially in spring wheat, cotton, flax and sugar beets. Technical crops were increased in the Far East by 37 percent over 1940, and in Siberia by 27 percent, but the yield was low for these crops.[34] The winter grain which was introduced in the eastern regions gave poor results as can be seen in the Table VI.[35]

According to the above table, Siberian winter wheat production failed by more than 25 percent of the total crop; and yet the Soviet agricultural scientists under the leadership of T. D. Lysenko moved

[30] S. A. Klepikov, *Food Intake of the Russian Peasantry* (Moscow: 1920), Part I, p. 12.
[31] *Socialist Economy*, August 1942, p. 26.
[32] *Socialist Agriculture*, April-May 1946, p. 28.
[33] *Izvestia*, March 23, 1943.
[34] N. I. Voznesenskii, *Economy of the U.S.S.R. During the World War II* (Moscow: 1948), p. 95.
[35] *Socialist Agriculture*, December 1942, p. 4.

TABLE VI—Percentage of Failure of the Winter Grain, 1941

Region	Total winter crop	Percent of winter wheat	Percent of failure	
			Rye	Winter wheat
	(*hectares*)			
Novosibirsk	518,800	2.24	14.3	24.0
Omsk	400,600	1.92	14.0	38.0
Krasnoyarsk	273,000	2.05	5.3	25.0
Sverdlovsk	185,800	1.99	5.1	19.0
Irkutsk	159,400	0.38	6.3	50.0
Kustanai	156,700	20.64	5.1	9.0
Eastern Kazak S.S.R.	64,600	41.33	2.6	5.0

this crop to the eastern regions, replacing a more productive crop, the spring wheat. This was a definite mistake on the part of the Soviet planners, and it is doubtful that it will be repeated in the future. Millet had better luck, however, and its acreage in 1941 almost doubled. In 1940 6.1 percent of the total Soviet grain acreage was in millet, and in 1944 there was 11.2 percent; while wheat acreage in unoccupied regions was grown on 38.5 percent of the total grain acreage in 1940 and in 1943 on only 32.3 percent.[36]

The estimated 1942 grain acreage is 70,800,000 hectares. Grain production is 53,100,000 metric tons, with an estimated yield of 7.5 centners per hectare. Assuming that 30 percent had to be allocated for seeds and feed, then in 1942 the total amount of available grain for the Soviet population was approximately 37,170,000 metric tons. With an estimated population of 130,000,000, per capita consumption would be 286 kilograms. But estimates of per capita consumption for the civilian population should be reduced to make allowance for the solders' consumption of grain, which even on the basis of peacetime rations was established at over 350 kilograms of grain per year. Furthermore, with a large number of workers in heavy defense industries who needed higher rations, the per capita consumption of the remaining population, especially that of the office workers, would be considerably lower than the established 286 kilograms. This is of course an hypothetical analysis which considers all grains, a large part of which is rye, millet, barley and oats. Per capita consumption of wheat, therefore, is much lower. However, it is improbable that grain consumption could be below the minimum estimate of 270 kilograms per capita. Generally speaking, during the war it would have to be somewhat higher than the minimum in order to keep up intensive war production and to maintain the morale of the people receiving a higher money income. Again, in considering any reduction in consumption of grain per capita, it must be kept in mind that whatever reduction in grain was experienced by the Russians in 1942 it was supplemented by an additional intake in vegetables.

At this point it is appropriate to mention that all references to yield in these pages are to so-called "barnyard" yield. The Soviet crop estimate is arrived at from so-called "biological" yield. Under this technique crop yield is estimated immediately before the harvest, while crop is still on the root. Just before the harvest representatives of the collective farm, machine-tractor station, and the local party organization take several samples of grain from the field, weight the collected grain and thus arrive at "biological" yield, for the whole field. From this "biological" yield Russians subtract 10 percent to make an allowance for whatever losses in grain may take place during the harvest and during transportation of it to storage. The stored grain thus becomes "barnyard" yield.

Under planned economy such crop estimating technique serves two major purposes. Under controlled conditions it could provide a fairly accurate estimate of grain output which is to be allocated to various channels without creating unnecessary shortages in any one industry. Then, again, it may be used as a check on the efficiency in harvesting of grain in any locality or even region. If, for example, the spread between "biological" and "barnyard" yields is unusually high, and if the peasants themselves are unable or unwilling to correct this, then the

[36] *Socialist Agriculture*, June 1947, p. 28.

state may step in and correct the shortcomings.

This peculiarity in the Soviet crop-estimating method is popular with many writers and some of them use more than 10 percent in reduction of "biological" yield to arrive at "barnyard" yield. Naum Jasny uses 20 percent and he feels that 30 percent is not too unreasonably high. However, the difficulty in working with "biological" yield lies in the fact that it does not state the conditions under which this yield was obtained. It does not tell whether high yield was secured from the unirrigated or irrigated fields, in which case the reported yield may not be unreasonably high.

In 1943 there was a further increase in grain acreage, especially in Transcaucasus, Central Asia, the Kazak S.S.R., the Komi A.S.S.R., the Chuvash A.S.S.R., the Ivanov, Moscow and Gorki oblasts. And the Far East became self-sufficient in grain.[37] The Tadzhik S.S.R. too became independent in grain.[38] Plans for 1943 had called for an increase in grain acreage, mostly for winter crops is shown in Table VII.[39]

TABLE VII—PLAN FOR AN INCREASE IN GRAIN ACREAGE IN CENTRAL ASIA, 1943

Republic	*Increased Percentage*
Turkmen	49.2
Uzbek	28.7
Tadzhik	14.8
Kirghiz	2.0

In addition to the increase in grain acreage in Central Asia in 1943, the liberated regions contributed to the total grain output. The liberated Stavropol Oblast had, in 1943, 300,000 hectares of grain and 30,000 hectares of "technical crops."[40] Varoshilov Oblast, after 4 months of liberation, sowed 304,000 hectares, of which 198,000 hectares were grain.[41] In many regions which the Germans had occupied a few months, the Russians found a large grain acreage, sown under the German occupation; thus with the advancing Red Army in 1943 there were added regions which not only did not need to be helped by the Soviet government, but instead contributed to the total food output.

Naturally the war and occupation created readjustment in farming practices. In the cotton belt irrigated land used previously for cotton was turned into grain, and some grain fields were harvested 2-3 times per season. This was practiced in the southern parts of the Kazak S.S.R., where, in 1943, 50,000 hectares of irrigated land gave several grain crops. The Kazaks' practice was expanded to several hundreds of thousands of hectares.[42] Many collective farms in the dry regions of the Volga River areas created small irrigated plots of 15-20 hectares on which grain was grown. This innovation took place in many eastern regions; and in 1941-1942 approximately 1,700,000 hectares of irrigated land were planted in wheat.[43] Incidentally, throughout his recent book, *The Socialized Agriculture of the USSR*, Naum Jasny does not give a proper place to irrigation, drainage and fertilization.[44] Irrigation, reclamation and intensified fertilization are the means by which Russians intend to increase their yield and production.

In spite of increased wheat acreage in some regions in 1943, the total spring wheat acreage declined. However, the rice, buckwheat and millet acreage in-

[37] E. S. Karnouhova, *Productivity of the Collective Farms During the World War II* (Moscow: 1947), p. 53.
[38] *Communist Tadzhikstana*, February 1, 1947.
[39] *Socialist Agriculture*, March-April 1943, p. 5.
[40] *Izvestia*, June 12, 1943.
[41] *Izvestia*, July 8, 1943.
[42] E. S. Karnouhova, *Productivity of the Collective Farms During the World War II* (Moscow: 1947), p. 60.
[43] *Ibid.*
[44] Naum Jasny, *The Socialized Agriculture of the U.S.S.R.* (Stanford University Press: 1949).

creased. Millet was widely grown throughout the Soviet Union, and because of its high yield replaced spring wheat in Central Asia and in the Kazak S.S.R. In 1943 millet was sown on 2,000,000 hectares.[45] Production of oats and barley also decreased, but corn increased, especially in the liberated regions, where there were not enough wheat and rye seeds. So, by 1943 agricultural practices were changed not only in the unoccupied regions but in the liberated regions as well. The liberated regions increased their winter crops, especially rye, millet, corn, and decreased their spring wheat and feeding grain. The unoccupied regions decreased their total grain acreage, especially that in wheat.

The general scarcity of labor and farm machinery forced the peasants to abandon the principles of scientific farming. The amount of fallow plowing was considerably decreased. Data for six grain oblasts in the Kazak S.S.R. shows that in 1940 those six oblasts had 18.2 percent of their land fallow plowed, and in 1942 the percentage was 6.4.[46] Similar reduction in fallow plowing was experienced in other parts of the Union.

Estimated grain acreage for 1943 was 74,300,000 hectares and the production 55,700,000 metric tons; with an estimated average yield of 7.5 centners per hectare. The year 1943 was a turning point for the eastern regions and, in fact, for the Soviet Union as a whole. The production of grain was critical, and only the liberated regions hauled the Soviet Union out of a catastrophic failure as far as grain production was concerned. In 1943 almost all the eastern regions except Central Asia reduced their grain acreage —as may be seen from Table VIII—for the Irkutsk Oblast, which is no different than that of other oblasts.[47]

TABLE VIII—SOWN HECTARES AND WHEAT HECTARES IN THE IRKUTSK OBLAST

Year	Total sown hectares	Wheat hectares
1940	761,500	222,900
1941	803,700	232,000
1942	948,600	252,300
1943	929,000	227,700
1944	810,000	184,500
1945	732,200	161,900
1946	728,300	182,700
1950 (Plan)	880,000	208,000

It is safe to assume that the experience in the Irkutsk Oblast was not substantially different from that of other oblasts in Siberia and elsewhere. The same scarcity of labor, farm machinery and seeds existed thoughout the Union. However with a new five year plan (1946-1950) there was an increase in wheat acreage, and it is interesting to note that this plan, as shown for the Irkutsk Oblast, is not all unreasonable. All it calls for is the establishment of prewar acreage in wheat.

Deterioration in production of food and fiber was not due solely to scarcity of labor, machinery and seeds. In 1943 morale was below that of 1941 and the beginning of 1942. Many peasants, because of the relaxation of socialistic discipline, became interested in their own plots and the handsome incomes to be obtained there, or in other even more profitable occupations, such as making bricks for the industry. The quality of farm work declined and the required deliveries to the government were short of the expectation. To overcome this shortage and to increase efficiency of farm labor, the Soviet government in 1944 issued a plan which provided for an increase in the yield of all grain,

[45] E. S. Karnouhova, *Productivity of the Collective Farms During the World War II* (Moscow: 1947), p. 60.
[46] *Ibid.*
[47] P. A. Yakhtenfeld, *Spring Wheat in the Irkutsk Oblast* (Irkutsk: 1947).

particularly spring wheat in the eastern parts of the Union. Under this plan, assisted by a better organization of farm work and more farm machinery, the Altai Krai, Krasnoyarsk, Omsk, Novosibirsk, Kemerovsk and Northern Kazak oblasts were to increase their acreage under spring wheat. In addition to the plan for the increase of spring wheat, the government issued a decree on August 11, 1944 which authorized the collective and state farms located on the steppes, and on open fields in the forest regions of Siberia and parts of the Kazak S.S.R. to increase their acreage in rye and winter wheat. For that purpose in 1944 the government permitted the whole 1943 harvest of winter wheat in those regions to be used for seeding purposes.[48]

Because of a mass invasion of weeds, the Ural, Siberia and the Kazak S.S.R. were permitted to use virgin and unused land for their grain. The plan provided means by which barn manure was spread over larger acreage and seeds and labor and machinery were allocated in larger amounts than in 1943. Thus, the 1944 spring sowing was done more efficiently than in 1943, the harvest was better organized and required deliveries were both larger and more prompt.

It is because of this decree that during 1944 the machine-tractor stations improved their field work, and also extended their services to the collective farms by 25,000,000 hectares more than in 1943.[49] As a result of this decree in 1944 the Ukraine alone was able to sow 7,875,000 hectares of spring wheat.[50] In that year the liberated regions produced 30 percent of their prewar grain, 40 percent of their prewar sunflower, 67 percent of their prewar flax and 25 percent of their prewar sugar beet acreage.[51] But the Altai Krai, Novosibirsk and Ulianov oblasts, the Mordva A.S.S.R. and the Tatar A.S.S.R. lagged in their deliveries of grain, did not improve their field work, and did not increase the yield. In 1944 Siberia and the southeast Kazak S.S.R. decreased their total sowing acreage, especially in spring wheat.[52] The Soviet press called attention to the fact that Soviet planners had anticipated such a reduction due to the shifting of scarce resources to liberated regions. So, in 1944 there was an expansion of acreage in the liberated regions, and contraction of it in the eastern parts. The policy had two objectives. One objective, of course, was to increase acreage in the liberated regions and to collectivize the peasants who were decollectivized by the Germans in those regions. The second objective, because of the now reduced resources for the eastern collective farms, was to reduce acreage in the eastern parts but increase the yield there.

No less than 33 editorials in *Pravda* and *Izvestia*, during the month of December 1944, dealt with the economic issues and problems of the country. The subjects stressed included the necessity for the fulfillment of 1944 plans in agriculture, especially grain deliveries. In general, editorials praised various organizations for excellent performance and devotion to the Soviet cause, but pointed out that certain regions were short in their obligations to the state. The general theme was that the bolsheviks must never be satisfied with what they have accomplished and must strive for still higher goals in production. There should be no such thing as "average fulfillment" of a plan or delivery of grain. Each and every collective farm should fulfill its plan and obligations to the state, and the whole country was called upon to liquidate the lag in grain deliveries.

[48] *Vostochno-Sibirskaia Pravda*, August 13, 1944.
[49] *Socialist Agriculture*, November-December 1945, p. 24.
[50] *Izvestia*, August 4, 1944.
[51] N. I. Voznesenskii, *Economy of the U.S.S.R. During the World War II* (Moscow: 1948), p. 164.
[52] *Socialist Agriculture*, March 1945.

For 1944 the estimated grain acreage was 83,300,000 hectares and production was estimated at 73,700,000 metric tons with an average yield of 8.8 centners per hectare. The 1944 yield was improved because of the greater amount of heavy farm work done by the machine-tractor stations. Along with the increased production of grain increased consumption was beginning. The 1944-1945 per capital consumption of grain was about 6 percent higher than in 1943-1944.[53]

The 1945 plan called for an increase of 8,100,000 hectares in total sown acreage. The plan provided for an expansion of 2.8 percent in spring wheat and in winter crops in the Ural, the Volga River regions, and in the Kazak S.S.R., which were directed to use virgin and unused lands for that purpose.[54] The plan also provided means for rehabilitation of agriculture in Latvia, Lithuania, Estonia, Ukraine, White Russia and Moldavia. Under this plan in the Ural, Siberia, and the Kazak S.S.R. spring wheat was to be returned to prewar acreage.

In 1945 stress was placed not only upon increasing grain production but on collectivization of the liberated peasants. At the beginning of 1942 the Soviet Union had 135,000 collective farms, and in 1945 this number had increased to 200,000.[55] This increase came through rehabilitation of old collective farms in the liberated regions. But, although the war ended in 1945, the Soviet government was unable to organize all of the peasants on collective farms. In 1945, after the Germans were driven off Russian soil, there were 42,000 fewer collective farms than in 1940. This represents about 14-15 million of peasants who were not in the collective farms. Many of those collective farms in the liberated regions were destroyed by the war, but the peasants who previously were members of the collective farms under German occupation became private entrepreneurs and now were hesitant about rejoining collective farms. In fact, many peasants left farms and went into industry and many others became private owners. That is why, according to Soviet statistics, only 69 percent of the total 1940 Soviet sown acreage was sown in 1945, but grain acreage in 1945 in the liberated regions was 75 percent of that cultivated in 1940.[56]

The year 1945 was as confusing as 1942. Plans and practices were changing in rapid procession. The war contracts with industry, which was working for the armed forces, were in many cases cancelled, and a mass movement of people began drifting back to their old homes in the liberated regions. Many evacuated peasants, who had joined the eastern collective farms during the war, moved back to their old homesteads bringing livestock and equipment donated to them. In face of this confusion only the Ural, Eastern Siberia and the Kazak S.S.R. increased their grain acreage, particularly spring wheat. The rest of the eastern regions were short not only in sowing acreage but in their obligations to the state.[57]

The estimated grain acreage for 1945 was 85,200,000 hectares, with production of 66,500,000 metric tons and an average yield of 7.8 centners per hectare. Thus, the gains made in 1944, because of reconversion, were lost in 1945.

The plan for 1946 called for an increase in grain acreage of 6,300,000 hectares. The Soviet planners expected that 1946 grain production would be so

[53] The United States Embassy at Moscow, *Communique to The Department of Commerce, Washington, D. C.*, August 20, 1945.

[54] *Izvestia*, July 13, 1945.

[55] *Machine-Tractor Station*, No. 9, 1945.

[56] *Large Soviet Encyclopedia* (Moscow: 1947), p. 878.

[57] *Izvestia*, March 9, 1946.

greatly improved that it would be possible to abolish rationing. However, this expectation did not materialize because of the drought in 1946. The estimated 1946 grain acreage was 90,200,000 hectares and production was 63,100,000 metric tons, making an average yield of approximately 6.4 centners per hectare. The year 1946, because of the drought, was a difficult year in the western parts of the Union, while the Ural, Siberia, Central Asia and Transcaucasus enjoyed good weather and good harvest. Western Siberia and the Kazak S.S.R. produced, in 1946, 50 percent more grain than in 1945, and Altai Krai produced 2.3 times more than in 1945.[58] And although food was scarce and inadequate in the western parts of the Union, which were effected by the drought, there was no mass starvation of peasants as in 1921.

The Soviet population in 1946 is estimated at approximately 206 millions.[59] The 1946 grain production was estimated at 63,100,000 metric tons, of which about 30 percent was in seeds and livestock. This left for human consumption approximately 44,200,000 metric tons, and the minimum requirement at 270 kilograms per capita is 55,620,000 metric tons. Thus, in 1946 the Soviet Union was short 11,420,000 metric tons. It is because of this grain shortage that the peasants in the drought-affected regions slaughtered their livestock.

Once in a while the Soviet government puts into effect sweeping measures which have repercussions on the whole Soviet economy. Without public discussion either before or after the issue of such measures, such a decree was put into effect in 1947. Rationing was abandoned and monetary pricing and fiscal systems were readjusted. According to the Soviet press, 1947 was a good year, with an almost prewar grain production. The estimated grain output for 1947 was 99,700,000 metric tons. This was 9,100,000 metric tons below that of 1940, but in 1947 livestock population was below that of 1940, requiring a smaller share of total grain for livestock maintenance. In addition to a reduction in total livestock in 1947 a large percentage was grazing on the range, further reducing the share of grain which otherwise would have had to be allocated for the livestock. Thus, on the whole in 1947, the grain consumption per capita was somewhat within the 1940 level.

In 1947 the Altai Krai reached its prewar spring wheat acreage, but in some parts of Siberia and the northern Kazak S.S.R. the sowing was delayed. Some districts in the Volga River regions, Siberia and the eastern Kazak S.S.R., and in the black-soil zone did not fulfill the plan for spring wheat while other districts sowed spring wheat in even a smaller acreage than in 1946. All this held back the restoration of spring wheat in the eastern parts of the Union.[60] In many eastern parts of the country, where spring wheat used to be grown, millet was still producing a large acreage. However, on the whole, grain conditions in 1947 undoubtedly were considerably improved over those in 1946 and, according to *Pravda*, October 17, 1947, the 1947 grain production was 58 percent over that of 1946, which indicates the intensity of the drought.

An editorial in *Izvestia*, January 1, 1949, states that 1948 grain production

[58] *Izvestia*, January 23, 1947.

[59] Julian Tawster, *Political Power in the U.S.S.R. 1917-1947* (New York: Oxford University Press, 1948), p. 197. The number of eligible voters in the election of the Supreme Soviet of the U.S.S.R. in 1937 was 94,134,159 persons and in 1946 it was 101,717,686 or an increase of 8 percent. The Soviet population in 1937 was 169,519,127 persons, and so the 1946 population in the old boundaries is estimated for 1946 at 183,000,000. To this estimate must be added the additional 23,000,000 of the Baltic republics which were occupied in 1940, making a total of 206,000,000.

[60] *Bolshevik*, No. 5, 1948.

had reached the prewar level and its yield was over that of 1940. The editorial stated that the current domestic needs in grain were fully met and that it was possible to create reserves for future needs. This abundant harvest was due chiefly to better organization in the timing of the farm work, but most of all the good harvest was due to excellent weather conditions. In 1948 Siberia delivered to the government 655,700 more metric tons than in 1947.[61] The Central regions had excellent weather, too.

There are no statistics on Soviet grain stock pile. N. I. Lenin, in 1921, expressed the opinion that the government should have a reserve of about 4,000,000 metric tons.[62] Lenin's opinion amounts to an order, and it is safe to assume that the suggested amount was larger in 1940, and was used by the government as required by the war emergency. For example, in 1943 some of the liberated regions received 55,000 metric tons of seeds from the national granary.[63] Again in 1942 there was an earthquake in four districts in the Tadzhik S.S.R., and the government allocated seeds and other supplies for their needs and at the same time freed all these districts of all form of taxation during 1943 so that they could rehabilitate their economy.[64] The 1946-1950 plan calls upon Soviet grain elevators and warehouses to provide an additional storage space for 6,400,000 metric tons of grain.[65] And considering all the factors affecting Soviet grain production and consumption during the last 10 years it is not too unreasonable to state that the present Soviet stockpile of grain is not more than 8,000,000 metric tons.

The estimated 1948 grain acreage is 106,500,000 hectares and production is 114,700,000 metric tons, with an average yield of 10.8 centners per hectare, equal to the 1940 level. There were no scarcities of grain in 1948 as there were during the war. Wheat acreage was still short by about one-third of the 1940 acreage, but the shortage of wheat in 1948 was not as acute as it was during 1942-1947. Nevertheless, wheat did not reach the prewar acreage, as the Soviet press and leaders had anticipated. In 1948 grain acreage became stabilized and the stress was on efficiency rather than on expansion in acreage for the 1950 plan called for 105,700,000 hectares only. As a result of more efficient farming 1949 grain production was increased by 2,100,000 metric tons, making the 1949 grain output 116,800,000 metric tons produced on approximately the same acreage as in 1948.[66]

The main purpose of the five-year plan (1946-1950) is to rehabilitate agricultural production to the 1940 level. Main emphasis in 1950 is on increase in livestock population, increase in the yield, more timely sowing and harvesting practices, and more efficient repairs of farm machinery. Although the 1950 grain output is anticipated at 127,000,000 metric tons, 8,200,000 metric tons larger than it was in 1940, 1950 should have a larger number of mouths to feed.

In 1940 the Soviet Union had 118,800,000 metric tons of the total grain. Of this amount 81,967,200 metric tons or approximately 69 percent was bread grain.[67] But only 38,300,000 metric tons or approximately 32 percent of the total grain was commercial grain which was available to Soviet consuming public.[68] And of this commercial grain

[61] *Sovkhoznaia Gazeta*, November 7, 1948.
[62] *Planned Economy*, No. 1, 1946, p. 47.
[63] *Pravda Vostoka*, August 24, 1943.
[64] *Stalinskii Komsomolsk*, February 3, 1943.
[65] N. I. Voznesenskii, *Planned Economy*, February 1946, p. 24.
[66] *Izvestia*, November 7, 1949.
[67] *Planned Economy*, No. 1, 1946, p. 21.
[68] *Planned Economy*, No. 1, 1946, p. 7.

about 21,311,000 metric tons or roughly 18 percent was commercial bread grain.[69] Assuming that the process of milling of bread grain into the flour creates 28 percent of shrinkage in grain, then the Soviet flour production in 1940 may be estimated at 15,344,000 metric tons. The Soviet Union at the end of 1950 is planning to produce 19,000,000 metric tons of flour or about 23.2 percent more than in 1940.[70] According to N. I. Voznesenskii, this volume of flour is to be reached in 1950 by increasing milling capacity of 20,000 metric tons of flour per day.[71] Assuming that the Soviet mills work 310 days a year then the additional flour production in 1950 is to be 6,200,000 metric tons, which indicates that the Soviet flour production in 1946 was only 12,800,000 metric tons and this, considering severe drought during that year, was the lowest flour production since 1920-1921.

According to *Izvestia*, March 15, 1950 the number of voters in March election was 111,116,373 against 101,717,686 voters in 1946 election or an increase of 9.24 percent for 1950 election. If this percentage is applied to our estimated 1946 population of 206 millions, then 1950 population may be estimated at 224.5 millions. Assuming that the above method in estimating Soviet population is fairly reasonable, then the present Soviet population may be estimated at around 224 millions or 16 percent over that of 1940 population.

In general 1950 per capita consumption of bread grain even with the estimated population of 224 millions should be about the same as in 1940 or perhaps slightly higher. But it is doubtful that the Soviet government would expand its grain output beyond that point, for the production of fiber and oil crops and livestock is more urgently needed. There will be local expansion in grain production, but only in those regions where it can be done without straining scarce resources in other regions.

The new five-year plan provides grain increases of 6.9 percent for the nation as a whole. Distribution of grain production within the Union is not planned at a uniform rate, as may be seen from Table IX which compares 1940 and 1950 grain production.[72]

TABLE IX—GRAIN PRODUCTION FOR THE U.S.S.R. AND FOR THE EASTERN REGIONS, 1940, 1950
(*in metric tons*)

Region	1940	1950	Percent Increase
U.S.S.R.	118,800,000	127,000,000	6.9
Ural	10,460,000	11,160,000	6.7
Western Siberia	8,830,000	11,250,000	27.4
Eastern Siberia	3,880,000	4,208,000	8.5
Kazak S.S.R.	3,620,000	5,070,000	40.0

According to the above table, the Soviet government intends to increase its total grain in 1950 by about 7 percent. The Ural would increase its grain output by 6.7 percent and Eastern Siberia by 8.5 percent. Those two regions are not grain surplus producing regions. The Ural is industrialized and its agricultural expansion is limited by rough topography on one hand and high demand for dairy and vegetable production for the urban population of the region on the other. Eastern Siberia has a shortage of labor and its land is not suitable for extensive grain production.

In 1950 the Ural will still be a deficit grain-producing region. The same may be said about Central Asia. Western Siberia has been a surplus producing region and in 1950 it is increasing its grain output not only to take care of the local needs but to export to other regions. During the war this region became a

[69] *Planned Economy*, No. 1, 1946, p. 21.
[70] *Planned Economy*, No. 2, 1946, p. 142.
[71] *Planned Economy*, No. 2, 1946, p. 24.
[72] S. Demidov, *Rehabilitation and Development of Soviet Economy During the 1946-50 Plan* (Moscow: 1947), p. 63.

major grain producing area by using peasants from the Volga German A.S.S.R., the entire population of which was moved from the Volga River to Western Siberia. Many of those peasants no doubt will remain in Western Siberia, working on the land which they have developed during the war. The Kazak S.S.R. in 1950 is intended to increase its grain production by 40 percent so that by 1950 this republic should be self-sufficient in grain because a large percentage of its livestock is now grazed on the ranges and would require less grain. Most of the land increase in this republic will be obtained from the irrigated land developed during and after the war.

On the whole the eastern regions will increase their grain output by 18.2 percent over that of 1940, and instead of producing 22.5 percent of the total U.S.S.R. grain production in 1950 will produce 24.9 percent. It appears that in 1950 the eastern regions will not become surplus grain producers and that the U.S.S.R. as a whole will have to depend on the grain produced in the western and central regions of the Union. The 1946-1950 plan, if achieved, will by 1950 put the Soviet Union on the same level as it was in 1940 and no further.

TABLE X—Summary of Areas Under Cultivation and Production of Grain in the U.S.S.R., 1940-1950
(*in 1,000 hectares or metric tons*)

Year	Total sown	Total grain	Spring wheat	Winter wheat	Total grain
	hectares	*hectares*	*hectares*	*hectares*	*metric tons*
1940	150,400	110,400	25,600	14,200	118,800
1941	81,300	76,300	.....	.....	73,200
1942	83,300	70,800	15,900	5,100	53,100
1943	89,100	74,300	16,000	8,000	55,700
1944	96,100	83,300	.....	.....	73,700
1945	104,200	85,200	10,600	7,500	66,500
1946	112,400	90,200	8,600	9,400	63,100
1947	120,400	96,500	10,600	10,900	99,700
1948	134,200	106,500	16,100	14,600	114,700
1949	140,200	.....	17,700	.....	116,800
1950 (Plan)	158,600	105,700	.....	13,200	127,000

Source: Author, Ph.D. dissertation, *Soviet Agriculture Since 1940*, Department of Rural Economics, Ohio State University

The Great Lakes-St. Lawrence Project

By ARTHUR D. ANGEL*

MORE than four centuries ago Jacques Cartier was prevented by the rapids of the St. Lawrence River from sailing westward from Montreal into the world's greatest inland waterway—the Great Lakes. Only within the past century has their inexpensive transportation facilitated development of a great industrial region based on the iron of Minnesota, the limestone of Michigan and the coal of Pennsylvania. But the rapids of the St. Lawrence are still an impediment to marketing the bulky agricultural produce from the heart of the continent on a competitive worldwide basis. Moreover, as will be explained later, it is now evident that the steel industry may, due to exhaustion of high grade Lake Superior ore, face increasing costs if the Great Lakes-St. Lawrence Seaway is not constructed to permit an adequate supply of high grade iron ore from other sources to reach the region.

In the third decade of the present century, Secretary of Commerce Herbert Hoover recommended construction of a deep seaway that would open the harbors of Duluth, Milwaukee, Chicago, Detroit, Toledo, Cleveland, Buffalo, Fort Williams and Port Arthur to large ocean-going craft. At that time the railroads with terminals on the Great Lakes favored the idea, and the states of Minnesota, Wisconsin and Michigan created state tidewater commissions for planning harbor improvements and supporting the federal government in the undertaking.

Since the American Association of Railroads is today the strongest opponent to the construction of the Great Lakes-St. Lawrence Seaway,[1] it may be interesting at the outset to observe the reasons given by railroad executives in the 1920's for supporting its construction. They may be summarized as follows:

(1) The lower cost of deepwater transportation would extend the economic radius for marketing and develop railroad traffic to and from the ports.[2]

(2) Rail delivery of bulky agricultural produce to Great Lakes ports, rather than congestion of traffic in the East, would increase car efficiency through quicker return of rolling stock and result in greater earnings per car.[3]

(3) The lower transportation costs of reaching world markets would stimulate Mid-

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[1] Julius H. Barnes, formerly chairman of the Chamber of Commerce of the United States, declared in 1947, that the American Association of Railroads, organized in 1934, is "clearly dominated by the three trunk lines—the Pennsylvania, the New York Central, and the Baltimore & Ohio." See testimony of Mr. Barnes before U. S. Senate, Sub-Committee of the Committee on Foreign Relations, *St. Lawrence Seaway Project, Hearings*, 80th Cong. 1st sess., 1947.

[2] Edward Pennington, president of the Milwaukee, St. Paul & Sault Ste. Marie expressed his opinion as follows: "Looking to the future of this great Northwest, which is not half developed, the transportation lines that we have at the present time cannot handle the products of this country. Our surplus that goes overseas cannot be handled by the eastern ports on the transportation lines east of Chicago, without having to pass over the Allegheny mountains, except that which goes via the lakes in bulk. If the producers of these Northwestern states could ship without reshipping, it would gain a great deal of revenue for the producers." Michigan Great Lakes Tidewater Commission, *Lest We Forget*, 7, 1941.

[3] Ralph Budd, president of the Great Northern Railway Company, advanced the opinion that: "The benefits accruing to the middle and northwestern sections of the United States, as a result of the Great Lakes-St. Lawrence Project, cannot help being apparent to anyone who has given the subject consideration. . . . The interests of the Great Northern Railway which is so intimately associated with those of its territory would necessarily be furthered. . . . Exporting could be carried on freely from this great middle and northwestern territory directly from the termini of the rail lines which serve the territory. It would mean much for an improved car supply in times such as those recently experienced in that cars, instead of being lost to the western lines and in that way to the shippers of the Northwest, would be unloaded at the lake ports and returned immediately to the territory for other loads." *Ibid.*, 5.

western production and therefore increase traffic and earnings of the railroads.[4]
(4) Rail traffic would also increase, due to the improved purchasing power of Midwesterners whose economic margin of production would be widened.[5]

That construction of the Great Lakes-St. Lawrence Seaway would inure to the benefit of other areas, as well as to the Midwest, was the view of Howard Elliott, then President of the Northern Pacific Railroad Company. Speaking in 1924 to the Harvard Club, Mr. Elliott declared:
"This is a great project national in scope and influence. It is a plan for a ship canal, to be eventually 30 feet deep between the lower St. Lawrence and Lake Ontario, in which the United States and Canada will have an equal interest. . . . the project will be beneficial to New England and to all of the country tributary to the Great Lakes. It will relieve congestion on the upper Atlantic ports, when population and industry are twice what they are today. The project will help coastwise trade, export and import trade between middle western states and foreign countries and give greater opportunity to our merchant marine fleet."[6]

Nature of the Project

By-passing the Niagara Falls, and thus forming a part of the 2,300-mile waterway that will open the Great Lakes ports to large ocean-going craft, the Welland Canal was completed in 1932 by the Dominion of Canada. Also considered part of the Great Lakes-St. Lawrence Seaway, the MacArthur Locks of the Soo Canal were installed in 1943 by the United States. All of the locks in the Welland and Soo Canals will permit passage of large ships drawing up to 30 feet of water. Remaining to be improved under international agreement is a portion of the St. Lawrence River not more than 50 miles in length, which now has a channel depth of 14 feet.

It has not been proposed that the Seaway should be deepened to accommodate the very largest craft of the Queen Mary type. Since the seven locks remaining to be constructed will be of the same depth as the present 30-foot locks at the Welland and Soo Canals, the Seaway will admit ships up to 800 feet in length and 80 feet in width, loaded to a draft of 25 feet in salt water. This includes 10,000-ton cargo ships of the Liberty class, or 80 percent of all ocean-going craft. It would also accommodate the new 15,000-ton Great Lakes ore ships. If warranted by the demands of commerce, the initial channel depth of 27 feet may be deepened at relatively small cost because all lock sills will accommodate ships drawing 30 feet.[7]

Dual-purpose in the International Rapids section, the project will generate 2,200,000 horsepower of firm hydroelectric energy, at an estimated cost of less than half the cost of energy generated from fuel. This is equivalent to the amount that is produced from five 100-car trains of coal daily in the most efficient steam electric plants.[8] Half of the power plant will be located near Cornwall, in the Province of Ontario, and half on the American side of the St.

[4] When he was president of Chicago, Milwaukee & St. Paul, H. E. Byram said: "We are heartily in sympathy with the development of the waterway. . . . It is useless to fight such an improvement for our country. On the contrary we expect to share the greater business that will come with the opening of the Great Lakes to the sea." *Ibid.*, 3.

[5] Mr. Hale Holden, president of the Chicago, Burlington & Quincy, concluded: "I view the Great Lakes-St. Lawrence Tidewater Project as a matter of the highest interest and importance to the development of the middle and northwestern territory, comparable only to the Panama Canal in its widespread and beneficial results. . . . Past experience with rail and lakes movement offers a guide to this greater development towards rail, lake and tidewater movement and not the least important result will be increased protection in times of heavy demand to the equipment of the large grain carrying roads in western territory." *Ibid.*, 7.

[6] *Ibid.*, 2.

[7] See testimony of Lt. Gen. R. A. Wheeler, Chief of Engineers, U. S. Army in U. S. Senate, Sub-Committee of the Committee on Foreign Relations, *St. Lawrence Seaway Project Hearings*, 80th Cong. 1st sess., 1947.

[8] See testimony of Leland Olds, then chairman of the Federal Power Commission, *ibid.*

Lawrence at Massena, New York. The New York plant will be within economic transmission range of New England, New York, northern Pennsylvania and New Jersey.

Like the present 14-foot channel, the deepwater Seaway, due to freezing, will be closed for an average of four months and ten days each year. However, the power plant, as the Canadian plants at Beauharnois and Shipshaw have proven, will be capable of generating a firm supply of hydroelectric energy every day of the year in an area producing no coal or fuel oil and urgently needing low-cost power to supply its steadily rising demands.[9]

Steps Leading Toward Ultimate Authorization

Since the 1924-1928 studies of feasibility made by the St. Lawrence Waterway Commission, under the chairmanship of Secretary of Commerce Herbert Hoover, four political decisions have been made, leading toward authorization of the remainder of the project by Congress. Collectively they insure that the power features will be self-liquidating, whether the Seaway is put on a comparable basis or not.

Respecting the costs of the power development on the Canadian side of the International Rapids, the Dominion of Canada and the Province of Ontario, on July 11, 1932, signed an agreement. It was brought up to date under the Dominion-Provincial Agreement of March 19, 1941, which provides for liquidating the Dominion's share of the costs assigned to power. Under it the Hydro-Electric Power Commission of the Province of Ontario will install its own machinery and repay the Dominion Government all costs allocated to power development on the Canadian side of the St. Lawrence River. The Hydro-Electric Power Commission will be entitled to use one-half of the normal flow of the St. Lawrence River for the generation of 1,100,000 horsepower of energy.[10]

A similar agreement negotiated between the Power Authority of the State of New York and the United States War Department Corps of Engineers was approved by Congress on April 26, 1933.[11] Under this federal-state agreement the Power Authority of the State of New York will take over the power house and appurtenant facilities for the generation of 1,100,000 horsepower of hydroelectric energy upon repayment to the United States the "total justly allocable to power development." This amount, under 1948 price levels, would be in the vicinity of $231,687,000. Congressional action on the federal-state agreement was contingent on, and could not take effect until, authorization for constructing the International Rapids section of the project was granted. Yet the agreement has continued to receive recognition from federal and state administrations and agencies since 1933 as an equitable self-liquidating basis for construction of the power facilities and works involving joint costs allocatable to power.[12]

A third step leading ultimately to authorization of the remaining portion of the project was taken in 1940 when the United States and Canada established the Permanent Joint Board on Defense to "consider in the broad sense the de-

[9] Power Authority of the State of New York, *Thirteenth Annual Report*, 1944.

[10] U. S. Senate, Committee on Foreign Relations, *Report No. 1499*, 79th Cong. 2d sess., 1946.

[11] House Joint Res. 157, 73d Cong., 1st sess., 1933.

[12] Construction of the Project under this self-liquidation federal-state agreement was recommended by: President Franklin D. Roosevelt, January 10, 1934, March 3, 1944; Secretary of State Cordell Hull, October 26, 1936, May 28, 1938, April 10, 1944; Secretary of State George S. Marshall, May 28, 1947; Secretary of War Henry L. Stimson, June 17, 1941, April 15, 1944; Secretary of War Robert P. Patterson, February 16, 1946; Governor Herbert H. Lehman, June 18, 1941; Governor Thomas E. Dewey, September 19, 1945; U. S. Senate Committee on Foreign Relations, June 13, 1946; New York State Legislature, March 16, 1944.

fense of the north half of the Western Hemisphere." On February 12, 1947, the two governments announced that each had decided to continue collaboration for peacetime joint security purposes. Shortly thereafter the Permanent Joint Board on Defense announced that:

"The completion of a deepwater navigation route from the sea to the heart of the continent would provide additional facilities for the movement of ships and essential supplies . . . and would also make possible the construction of oceangoing vessels in inland areas. Furthermore, the new source of power made available by the St. Lawrence project would greatly increase the defense potential of the two countries. It is therefore the view of the Board that the early completion of this long-delayed enterprise, on a cooperative basis satisfactorily to both Governments, would directly contribute to the security of the North American Continent."[13]

Acting under the defense powers delegated to him by Congress, President Franklin D. Roosevelt signed, on March 19, 1941, with Prime Minister King, the Hyde Park Agreement for continental defense, providing among other things for the appointment of a Great Lakes-St. Lawrence Basin Commission. The Commission, under this executive agreement, is to prepare plans for construction of the navigation and power facilities of the project, to supervise their construction following approval of the plans by the governments of Canada and the United States, and to perform such other administrative duties as may be assigned to it. This agreement has already been approved in full by the Canadian Parliament and the portion pertaining to construction of the Seaway will take effect when confirmed by the Congress.

Too late in the session for both houses of Congress to agree on the details of the agreement, the Senate Committee on Foreign Relations unanimously recommended, in 1946, a joint resolution confirming its sections providing for the Seaway's completion. As chairman of the Committee, Senator Arthur H. Vandenberg suggested approval, during the 80th Congress, providing the executive agreement is amended so as to put the Seaway on a self-liquidating basis. After holding exhaustive hearings the Senate Foreign Relations Committee failed to recommend his joint resolution. Meantime, Canada has expressed her willingness to put the Seaway on a tolls basis.[14] However, new economic factors of international ramifications since have altered the situation so favorably that such an amendment may not at present be considered by Congress as a desirable contingency for confirming the remainder of the Hyde Park Agreement.

Declining Opposition

Former President Hoover observed in 1947 that political opposition to construction of the Great Lakes-St. Lawrence Seaway and power project had diminished and estimated that its construction would be completed within a period of eight years. The construction of the Chicago Ship Canal, connecting Lake Michigan with the Mississippi River, had, he perceived, satisfied those Midwesterners who previously advocated improving the navigability of the Mississippi and its tributaries as an alternative water outlet. Moreover, Canadian agreement on the practical details of constructing and operating the St. Lawrence Seaway was, in 1928, contingent upon the amount of water that the United States might wish to divert from the Great Lakes for improving navigation of the Mississippi River. When the United States decided that a nine-foot channel for the Chicago

[13] Testimony of Secretary of State George S. Marshall before U. S. Senate Sub-Committee of the Committee on Foreign Relations, *St. Lawrence Seaway Project, Hearings*, 80th Cong. 1st sess., 1947.

[14] *Idem.*

Ship Canal would be more practical than a deeper one, Canadian opposition subsided.[15]

There remains, in the years following World War II, some strong opposition to the construction of the Great Lakes-St. Lawrence Seaway. This opposition is chiefly from the ports of Buffalo, Boston and New York, the Association of American Railroads, and the United Mine Workers of America.

According to such observers as Governor Thomas E. Dewey, this opposition, however, is declining. Speaking to the legislature of the state of New York, Governor Dewey used the following positive words:

"During these years, the proposal for the development of the hydroelectric power and the Seaway has steadily gained supporters. During the war the electric power production of the State was stretched to the maximum. . . . It has also been forcibly borne in upon us . . . that the dependence of so much of our electric power production on coal makes clearer the need for alternative sources of electric power production. Moreover, the great cost of replacement of capital equipment and of expanding capital equipment in the electric power field threatens to terminate or even reverse the uniformly decreasing cost of electricity to the consumers of this State in the future. A partial solution to all these needs is provided by utilizing to the full the water power of the State for the production of hydroelectric power.

"I am firmly convinced that in this course of action there lies additional prosperity for all people of the State. The Empire State is going forward, and in the future it can use all the railroad facilities, all the transportation facilities, all the waterways, and all the sources of power available to it or lying at its threshold."[16]

Spokesmen for the ports of New York, Boston and Buffalo maintained that construction of the Seaway will be destructive to their commerce. On the other hand the spokesmen for the American Association of Railroads, the American Merchant Marine Institute and the United Mine Workers contend that the Seaway will be an unsound investment. They maintain that traffic through the Seaway will, during seven and a half ice-free months of the year, be of insufficient volume to warrant the government expenditure.[17] Obviously, both points of view can not be right. In a static economy, it appears, according to the Department of Commerce experts, that the lake port of Buffalo and the ports of New York and Boston, as well as the railroads connecting them, might lose some, if not most, of the export and import trade originating in or destined for the Midwest.[18] However, the American economy is not static. Moreover, it is possible that the Seaway might make Cleveland and Buffalo ports for the export of coal, as it would doubtless make Chicago and Duluth ports for the export of wheat, in far greater volume than can now be profitably marketed.

Strong oppostion to the Seaway's construction, exerted in previous years by the private power companies,[19] is no longer evident, because it now appears that the hydroelectric energy to be generated by the government's investment will inure to the benefit of the private corporations.

Appraising the value of the power to be generated by the St. Lawrence project, Eastman, Dillon Co. recently advised its clients as follows:

[15] See testimony of former President Herbert Hoover before U. S. Senate Sub-Committee of the Committee on Foreign Relations, *St. Lawrence Seaway Project, Hearings*, 80th Cong. 1st sess., 1947.

[16] Power Authority of the State of New York, *The St. Lawrence Project: Public Needs for its Completion*, New York, 1948.

[17] Cf., Testimony of J. H. Parmelee, Walter E. Maloney, Chauncey L. Hamlin, A. S. Boden, R. Granville Currey, C. C. Fitchener, and Thomas Kennedy before U. S. Senate Sub-Committee of the Committee on Foreign Relations, *St. Lawrence Seaway Project, Hearings*, 80th Cong. 1st sess., 1947.

[18] See statement of Secretary of Commerce W. A. Harriman, and statement of Dr. N. R. Danielian, former director of the St. Lawrence Survey, Dept. of Commerce, *ibid.*

[19] See statement of Senator George D. Aiken, *Congressional Record*, December 11, 1944.

". . . If the St. Lawrence project becomes a reality, an opportunity will be offered for privately owned electric utilities to obtain low-cost power. This power should have a ready market in the region to satisfy postwar demands of industrial and domestic consumers. . . . The interests of investors in private utilities in the Northeastern United States might well be enhanced rather than decreased."[20]

It is estimated by the experts of the Hydro-Electric Power Commission of Ontario, the Power Authority of the State of New York, and the Federal Power Commission, and also by the experts of the private utilities, that St. Lawrence power will be less costly than steam power from the most efficient steam generating plants in the Northeast, where there is no coal or fuel oil.[21] Moreover, these experts anticipate that the large block of inexpensive hydropower will be a boon to the industry of New England and eastern Canada.[22]

Congress Must Reconsider the Project

Since the 1947 Hearings on Senator Vandenberg's S. J. 111 (80th Cong. 1st Sess.) several new developments have rendered desirable a reconsideration of the St. Lawrence Seaway's ultimate authorization. Among these are the rapid exhaustion of the high-grade iron ore in the Lake Superior region, the proving of a major high-grade ore field in Quebec and Labrador, the discovery of an immense oil field in Alberta, the increasing need for balancing our trade with Canada, and the urgency with which the state of New York now views the proposition of harnessing the power of the St. Lawrence River.

With a wartime demand for Lake Superior iron reaching an annual total above 100 million tons required to feed the furnaces of Chicago, Gary, Toledo, Pittsburgh, and Cleveland, the highgrade ores of Minnesota, Wisconsin, and Michigan are now nearing depletion. Meantime a vast ore deposit—equally high in iron and lower in silicon—was, in 1949, being developed in the Province of Quebec and in the Labrador Peninsula.[23]

In his address, on March 19, 1947, to the American Institute of Mining and Metallurgic Engineers, Charles M. White, president of Republic Steel Corporation, declared.:

"The prosperity of the United States is based upon a plentiful supply of high-grade, cheap furnace feed, convenient to ample reserves of coking coal and both near markets for the finished product—steel. . . . There is, of course, the possibility that the recent discoveries in the Labrador Peninsula ultimately may reveal very large reserves which might provide ore for the Lakes' furnaces as well as the eastern seaboard. But regardless of that possibility, within relatively few years, the lake-based steel industry must begin to equip itself with plants capable of concentrating low-grade ores—either in the Lake Superior or the eastern district, or in both districts—into material usable in its furnaces. Otherwise it must resign itself to a declining steel production. . . . Whether the decline in production from commercial reserves becomes material in five or ten years, or not until later, the period is too short to permit a passive course."[24]

Long an opponent of the Great Lakes-St. Lawrence Seaway, President White—and Mr. Crispen Oglebay of the Midwestern steel industry—now consider the project's construction expedient. In a

[20] From letter to investors dated April 15, 1947, and submitted by Leland Olds in his statement before the U. S. Senate Sub-Committee of the Committee on Foreign Relations, *St. Lawrence Seaway Project, Hearings*, 80th Cong. 1st sess., 1947.

[21] Using the average efficiency of 100 of the most modern fuel-burning plants, it was estimated in 1948 that St. Lawrence hydroelectric power delivered to the load centers would cost less than half the cost of fuel generated power, 3.38 mills per kilowatt hour as against 6.94 mills per kilowatt hour. Power Authority of the State of New York, *Eighteenth Annual Report*, 1949.

[22] *Ibid.*

[23] Robert Cochran, "Steel Industry's Hope for Big New Source of Iron," *Business Week*, September 11, 1948; also see *Business Week*, February 5, 1949 and *Iron Age*, January 6,1949.

[24] C. M. White, *Iron Ore and the Steel Industry* (New York: Republic Steel Corporation, 1947)

letter to the author Mr. White explained his present position as follows:

"I felt that the development of the Seaway might retard the beneficiation of Minnesota and Michigan lean ores. However, with the discovery of the Labrador ores, I have changed my opinion to the extent of thinking that another look should be taken at the Seaway. It is my belief that the Seaway should be developed on a basis that will permit it to pay out over a period of years just as the Panama Canal did or as a toll road would."[25]

In her purchase of lumbering, mining and other industrial machinery, automobiles, trucks and farm equipment from the United States, Canada is already on the short end of the international trade balance. It is obvious that these items will cost her still more if the price of steel is increased by the expense of beneficiating low-grade ores. Hence, the inescapable conclusion is that the entire American economy as well as that of Canada will benefit from construction of the deep Seaway, if it enables the Midwestern steel industries to continue their present efficient operation, with high grade Quebec and Labrador ores. In their study of the potential markets for Quebec-Labrador iron ore, the Canadian Bureau of Mines concluded in January 1949:

"Construction of the St. Lawrence deep waterway will probably ensure a profitable market in the area now served by Lake Superior ores. The Labrador field is capable of augmenting the supply of Lake ores and thus prolonging the life of the natural ore mines of the Lake Superior district. It is also capable of providing a rapidly expanded supply of ore to meet an emergency—a function the Lake Superior pits have performed in two emergencies, but may not be capable of fulfilling a third time."[26]

[25] Letter of C. M. White to Arthur D. Angel, dated August 3, 1949.

[26] M. W. Goodwin, *Labrador Iron Ore* (Ottawa: Bureau of Mines) 1949.

The Canadian Bureau of Mines estimated, moreover, that the cost of delivering high-grade Labrador ore to buyers in Pennsylvania, Ohio, Michigan, Indiana and Illinois when the Seaway is completed will be approximately the same as the cost of delivering Lake Superior ore.[27]

Now carrying cargoes upwards to 15,000 tons, the large Great Lakes type of ore ships can, when the deep Seaway is completed, provide a less expensive eastbound haul for Midwestern grain and coal than the railroads now do. Moreover, it now appears that on their westbound haul of Quebec and Labrador iron ore, they will transport considerably more than 25 million tons annually. Speaking at the 78th annual meeting of the Canadian Manufacturers Association, on June 8, 1949, Secretary of Commerce Charles Sawyer analyzed the current situation in the following words:

"More important to us than all of these [South American and African] sources of iron ore, however, are the deposits that have been discovered in recent years in Labrador and Quebec, and which are being explored through the joint efforts of the Hollinger Consolidated Gold Mines, Ltd. of Canada and the M. A. Hanna Company of Cleveland, Ohio. . . . This ore is at least as rich and possibly richer than the ores in our own Mesabi Range. It is close to the surface so that it can be easily mined. . . .

"As our own high-grade iron ores are depleted, Canadian ores become more important to American industry, and as we become more interested in the great Quebec-Labrador venture, we become more interested in the St. Lawrence Seaway. It is estimated that at least 30 million tons of ore a year could be brought through the proposed Seaway. . . .

"The development of Canadian iron ore would mean more than a new source of supply for the American steel industry. It would mean better business between Canada and the United States."[28]

[27] *Idem.*

[28] U. S. Department of Commerce, Advance Release, June 8, 1949.

Exceeding $3,000,000,000 in 1948, the trade between Canada and the United States surpassed the volume of trade between any other two countries in the world. Frugally conserving her meager dollar reserves, Canada continued to purchase more from the United States in that year than the United States did from Canada, creating consternation both in Ottawa and Washington. In the long run, the sale of Canadian ore to Midwestern steel industries will provide Canada with more dollar credits and help to ameliorate the situation. However, it is recognized in both countries that the importation of iron ore into the United States is neither an immediate nor a complete solution to the problem of trade imbalance.[29]

A second possibility of eventually providing Canada with adequate dollar reserves, while at the same time improving the economy of the United States, is seen in the possibilities for developing Canadian petroleum.[30] During World War II, it became clear that newly discovered American oil reserves could not supply the expanding demand for petroleum products in the United States. Fortunately, new fields were discovered in the Canadian Province of Alberta.[31]

The value of the Seaway for the transportation of petroleum is a relatively new justification of its economic soundness, for it now appears possible that Alberta oil delivered by pipeline to Duluth may be shipped through the Seaway to eastern Canada and New England. On the other hand, if the Texas and Oklahoma fields become exhausted, or if the demand for oil in Canada and the United States exceeds available continental supplies, the Seaway will become an increasingly valuable artery of import. In this connection Averill Harriman stated on June 13, 1947, when he was Secretary of Commerce, that:

". . . 1,000,000 tons of petroleum now move over the 14-foot channel. . . As in the case of iron ore, however, there is a real question whether domestic petroleum supplies will be able to meet constantly mounting requirements in the next 20 or 30 years. Should the United States and Canada secure an increasing percentage of their oil from oversea sources, particularly from the Persian Gulf region, it is not at all improbable that a great petroleum movement through the Seaway into the Lakes would develop."[32]

Obviously these wartime and postwar economic developments could not be foreseen when Herbert Hoover, as Chairman of the United States St. Lawrence Commission in 1927, estimated that the volume of Seaway traffic would reach 25 million tons. Potential shipments of iron ore and petroleum are new factors which must be considered in estimating the volume of traffic that will eventually move over the Seaway. It is estimated by one authority that these products alone will constitute a combined volume of traffic exceeding 60 million tons annually, and that a toll charge of 50 cents per ton from these two commodities would more than liquidate the costs of the project's navigation facilities. Since the volume of traffic moving over the present 14-foot channel now averages in the vicinity of 9 million tons, and since the volume of grain and other bulky exports now being trans-shipped at Buffalo will be exported directly in oceangoing vessels through the deep Seaway, it is possible that the investment in this enterprise will prove as sound as the federal investment in the Panama Canal.[33]

[29] *Ibid.*

[30] *Ibid.*

[31] Sam Boal, "A 'Texas' in Western Canada," *The Lamp*, June 1949; Dominion Bureau of Statistics, D. B. S. *Daily Bulletin*, July 8, 1949.

[32] U. S. Department of Commerce, Advance Release, June 8, 1949.

[33] See testimony of Dr. N. R. Danielian, *op. cit.*

New demands for inexpensive hydroelectric power have, during World War II and since, enhanced the importance of the power phase of the St. Lawrence project beyond all previous estimates.[34] Moreover, there is no probability in the foreseeable future that generation of electric energy from fissionable materials will render the use of hydroelectric energy obsolete. On this latter point, David E. Lilienthal, speaking for the United States Atomic Energy Commission on June 26, 1947, stated:

"We have no doubt that the long-range future of atomic power is bright, but believe that the process will in general be one of gradually supplementing rather than replacing other means of generating electric power. It is very likely that the first commercial installations of atomic power will be in locations with inadequate access to coal and economic water power. . . . We believe that it is unlikely that atomic power presents any serious question of rendering St. Lawrence power obsolete within the predictable future."[35]

Rather than posing a threat to the obsolescence of St. Lawrence power, the processing of pitchblende and other uranium and plutonium-bearing ores found in the Province of Ontario consumes an abundance of electric power. According to the former chairman of the Federal Power Commission, Leland Olds, this is the primary reason for locating the American atomic energy plants at Oak Ridge and Hanford, in the Tennessee and Columbia River Basins, where surplus hydroelectric power was available from the TVA and the Columbia Basin power projects.[36]

Requiring more than 20 billion kilowatt-hours of electric energy a year, the wartime program for processing aluminum alone required more power than was consumed in the entire United States in 1914. Other uses for electric power requiring a tremendous volume of energy, such as the electrolysis of magnesium from ocean water, were past the experimental stage by the end of the war. Indeed, the total electric energy requirements that the electric utilities of the United States were called upon to produce in 1944 were ten times the peak requirements of World War I. Moreover, new demands for electric power did not decline at the end of hostilities. In 1946 the demand was 14 percent higher than that of 1944, and subsequent years saw an increasing demand.[37]

Beginning in September 1947 commercial and industrial demands for electric power in the area to be served by the St. Lawrence project exceeded generating capacity. Voluntary curtailment of electric consumption was encouraged by increased utility rates and by rationing of power to certain industries that could be induced to change working hours to off-peak operations. In the New York City area demand exceeded assured generating capacity by 3 percent.[38]

With power shortages continuing in 1948 to increase, the state of New York and the Province of Ontario sought permission of the federal government to proceed, under an alternative plan, with construction of the power facilities of the St. Lawrence project. During a period of drastic curtailment of power consumption, the Federal Power Commission held hearings in October and November 1948 on the New York State Power Authority's application for a license to

[34] Power Authority of the State of New York, *The St. Lawrence Project: Public Needs for its Completion*, New York, 1948.

[35] Letter of David Lilienthal to Senator Alexander Wiley, dated June 26, 1947.

[36] See Statement of Leland Olds before the U. S. Senate Sub-Committee of the Committee on Foreign Relations, *St. Lawrence Seaway Project, Hearings*, 80th Cong. 1st sess., 1947.

[37] *Idem.*

[38] Power Authority of the State of New York, *op. cit.*

construct and operate the Long Sault Dam and power plant jointly with the Ontario Hydro-Electric Power Commission. Meantime approval of the International Joint Commission, established under the Boundary Waters Treaty of 1909, was also sought by the Ontario Commission and the New York State Power Authority.[39]

While the Federal Power Commission, the War Department Engineers and the Department of the Interior recommended the alternative plan for harnessing the power of the International Rapids, the State Department withheld action on its reference to the International Joint Commission, and finally disapproved the idea in December 1948. The reason for disapproval was stated as follows:

"After careful consideration of this matter, this government is of the opinion that in view of the shortage of power and the need for additional transmission facilities in the St. Lawrence region, it is desirable to renew the request to Congress for approval of the 1941 Agreement between the United States and Canada for construction of the seaway and power projects."[40]

Although Senator Lucas introduced, on June 1, 1949, S. J. Res. 99, which was practically identical to Senator Vandenberg's resolution of 1947, no additional hearings were held by the Senate.[41] Too late in the second session of the 81st Congress to do more than keep interest in the project, the House Public Works Committee held hearings on a similar measure by Representative Dingell in May 1950.

Conclusions

It should be evident to Midwesterners that construction of only the power phases of the St. Lawrence project by the State of New York and the Province of Ontario would postpone the day when the deep Seaway will be built. The Northeastern region needs the hydroelectric energy of the St. Lawrence more than ever before, but certain powerful financial interests of the Empire State do not wish to see the Midwest enjoy the benefits of deepsea transportation.

Probably no action by Congress could do more to improve the world market of Midwestern agricultural produce, to alleviate the Midwestern steel industry's problem of increasing cost for the production of steel by making the high grade ores from the Labrador peninsula available, and to enhance our trade relations with the Dominion of Canada. Ultimate authorization of the Great Lakes-St. Lawrence Seaway with its investment in power and transportation facilities, however, is an issue which will probably have to be considered by the 82nd Congress. The evidence indicates beyond cavil that the power facilities desired by the Northeast will be self-liquidating, and that the transportation facilities can also be placed on a self-liquidating basis, if that should finally be considered a desirable precedent for the construction of federal airports, highways and internal waterways.

[39] Power Authority of the State of New York, *Eighteenth Annual Report*, 1949.

[40] *Ibid.*

[41] Letter of Senator Arthur H. Vandenberg to Arthur D. Angel, dated February 7, 1950.

Patterns of Competition and Monopoly in Present-Day Transport and Implications for Public Policy†

By JAMES C. NELSON*

TRANSPORT has long been classified among the "natural" monopolies requiring a high degree of economic regulation for adequate standards of service, equitable rates, and best use of resources. But as the technological advances of the twentieth century were pervasively applied, transport increasingly became a field of competitive markets and monopoly power materially lessened, although it has not disappeared altogether. Monopoly has not been inevitable in automotive transport and has had a limited role in air and domestic water transport. With public provision of highways, waterways and airways, a ruthless, relentless and ever-widening technological competition developed which has produced extremely numerous markets where several technologies compete, each with a number of carriers varying from one to upwards of a hundred or more. The range of intra-agency market situations, formerly from monopoly to oligopoly, widened to include some cases of pure competition, with oligopoly of quite a few firms perhaps typical of the significant routes. These market changes brought a new set of problems, the eventual response to which was extension of comprehensive economic regulation of the rail pattern to new types of carriers despite absence of "natural" monopoly and public complaints as to rates and services. Although competitive urges and organizations are still much in evidence in interagency spheres, monopoly elements have grown in the "regulated competition" that supplanted free competition after 1935. Monopoly of law has replaced the earlier "natural" monopoly, but these conditions have not brought a millenium in transport. Recently the view has gained some currency that perhaps regulation has been based upon false economic premises and should be overhauled. Although much criticism refers to the conditions by which government makes public facilities available to carriers, regulatory patterns and policies have also been under scrutiny. Thus, an exposition of patterns of transport competition and their policy implications is timely.

I. Market Situations in Railroading

The general conclusion of economists in the period before 1920 was that railroads were "natural" monopolies. Competition between railroads was ruinous. It led to such severe rate cutting as to bring about generally unprofitable conditions, the threat of elimination of the weaker firms, and finally self-regulation by agreements, pools, traffic associations, or combinations and unifications of control.[1] Rates reflected carrier competition at points enjoying the services of two or more rail carriers, at localities at which alternative water service was available, and at markets having alternative sources of supply. Nevertheless, the typical railroad was in a strong position to discriminate in rates charged on heterogeneous commodities to, from,

† Adapted from an address before a group of members of the American Economic Association at its annual convention in Cleveland, Ohio, December 29, 1948.

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[1] Eliot Jones, *Principles of Railway Transportation* (New York: The Macmillan Co., 1929), pp. 86, 891-104.

and between noncompetitive and landlocked points. Society gained lower rate levels from discriminating rates that maximized traffic, raised utilization of equipment and facilities, and encouraged large-scale operations. Total railroad revenues and earnings, however, had to be restricted lest the individual monopoly units or the overhaul monopoly pricing organization mulct the public by exacting all that the traffic would bear.[2] In short, competition was ineffective as a sole regulator of rates and services. It was uneven, intermittent and self-eliminating. It led to some unwarranted investment in fixed and specialized facilities. Thus, the case for government control was clear, since private monopoly was intolerable to all except ownership, localities with good transport and market alternatives, and shippers with traffic power over the railroads. Unrestricted discrimination in a basic service industry was particularly obnoxious.

A point that should not be overlooked, however, is that the above series of generalizations was applicable during a period when railroads were necessarily developed far ahead of traffic and were almost the only sellers of intercity service. The minimum investment in the railroads was large. Optimism and speculation contributed to building facilities far in advance of effective demand. Thus, additional traffic could obviously be carried without proportionate additions to total costs. Better service and lower unit costs could be obtained by end-to-end consolidations and other combinations producing large-scale systems. However, management's failure to consolidate under the encouragement of the Transportation Act of 1920 has raised doubts over further economies of scale. Facility and equipment utilization under high-level operation of an expanded economy is closer to the ideal. And railroads no longer operate in markets in which alternative services are nonexistent or extremely limited.

Changed conditions and recent cost studies have shaken older notions of railroad cost characteristics. Transportation economists, if not general economists, are less certain than they were forty or fifty years ago that the railroads develop sharply decreasing cost and increasing returns.[3] The major railroads fairly successfully curtailed their aggregate costs with the decline of revenues and traffic during the Great Depression.[4] Although the great profits earned by the railroads during World War II appear in a degree to substantiate the continued existence of economies of utilization, wartime acceptability of lowered service standards, the extraordinary influences of war conservation measures on car utilization, and restraints upon rising wages should be accorded weight in explaining aggregate revenues that markedly outran total costs during that period. Possibly, too, insufficient investment was made as traffic expanded on account of pessimism as to the war's length and inability to obtain adequate steel. While no economist has claimed that all rail costs are now variable with traffic or revenue in the short run, a growing opinion is that upwards of 80 percent of aggregate costs may be variable, at least on main routes.[5] A larger proportion remains fixed for very short periods which, however, are of limited significance in railroad pricing. Aside from more thorough knowledge of cost variation, the altered

[2] *Ibid.*, pp. 80-81, 87-89, 110-113, 118-119, 133-134; and Joan Robinson, *The Economics of Imperfect Competition* (London: Macmillan and Co., 1948), pp. 204-208.

[3] *Rail Freight Service Costs in the Various Rate Territories of the United States*, S. Doc. No. 63, 78th Cong., 1st sess., June 8, 1943, pp. 41-44, 75; Kent T. Healy, *The Economics of Transportation in America* (New York: The Ronald Press Co., 1940), pp. 197-198, 283-286.

[4] *Ibid.*, pp. 161-194.

[5] D. Philip Locklin, *Economics of Transportation* (Chicago: Richard D. Irwin, Inc., 1947), pp. 160-163.

conceptions of cost reflects the logic of traffic growth. The country has become more populated than in the heyday of railroad building. The physical volume of production also has greatly expanded. Although much traffic has been diverted and developed by newer techniques of transport, the same number of railroads have had more traffic to divide up among themselves without engaging in ruinous price competition.[6] As recognized by Eliot Jones, one would expect a diminution of cut-throat competition (even without rate bureau control) and also of the opportunities to achieve lower total average unit cost by adding more traffic as the traffic situation gradually became better adjusted to railroad capacity.[7]

Evidence that railroad costs may be more variable than once believed has shifted regulatory emphasis away from rule-of-the-thumb, out-of-pocket cost pricing in favor of greater use of full-cost tests. Managements have been called upon to study their concept of out-of-pocket costs more critically, particularly in connection with merchandise and short-haul traffic. The ship lines have contended, with some success, that an economic allocation of traffic is thwarted in the intercoastal and coastwise trades by railroad overemphasis upon out-of pocket-cost pricing. Discriminatingly low rates to meet water competition in such cases may be uneconomic as well as preferential.[8] Recent reductions of interterritorial freight rate discrimination seem consistent with findings that high-density territorial systems do not achieve lower total unit costs than low-density systems. If, underpresent-day utilization of the railroads, added traffic results in reductions of total average unit costs within narrower limits than in the last century and then largely with respect to branch lines and other extremely low-density railroads, it follows that the range for socially justifiable discrimination in railroad rates has been lessened.[9] This is not to say that no economic case exists for rate and fare discrimination, but merely that the general case points less in the direction of a discriminating rate policy than in the 1880's.[10] Passenger fares present a special case of the economics of load factor with fixed schedules and a fairly elastic demand schedule for coach services.

The changes that have occurred in railroading have not multiplied the number of firms nor lessened the large-scale characteristics of railroads. Within the industry, firms are as oligopolistic as ever when alternative routing combinations are considered. But railroads have less traffic inducement to engage in ruinous competition and the industry has long been organized for concerted action on rates. Discrimination can be practiced in some markets where services of other agencies are not effective substitutes. Competition is still uneven geographically, especially at many small intermediate points. While competition is yet inadequate for the whole regulating task in railroading, competition can be a helpful aid to regulation. Possibly freer competition would, under current conditions, be a positive stimulant to futher modernization of service and equipment. Freer rivalry among individual carriers might lead to lower coach fares to retard

[6] S. Doc. No. 63, *op. cit.*, pp. 45-51.

[7] *Principles of Railway Transportation*, *op. cit.*, pp. 81-82, 93, 103-104.

[8] Kent T. Healy, *The Economics of Transportation*, *op. cit.*, p. 227.

[9] *Ibid.*, pp. 285-286; D. Philip Locklin, *Economics of Transportation*, *op. cit.*, 159-160, 162; Joan Robinson, *Economics of Imperfect Competition*, *op. cit.*, p. 208, footnote 1.

[10] The reference here is to rate discrimination, not mere rate differentiation. The greater part of the explanation of the large amount of rate differentiation as between commodities is due to differences in average loading per car, loss and damage differences, and service differences, that is to say, differences in unit costs of handling and carrying different commodities.

or prevent a return to the disastrously low prewar load factors. Such rivalry would lead to greater shipper satisfaction as to freight car delivery time and it might induce a lower freight rate policy to hold traffic to the railroads in the long run.

II. Interagency Market Situations

Even though changed conditions in railroading, taken by itself, would alter the traditional case for comprehensive economic regulation only in details, competition and monopoly in transport today cannot be described accurately in terms of railroading or the conditions internal to any one of the transport industries. Account must be taken of the markets in which the services of two or more of the several techniques of transport are offered by different carriers, of the great proliferation of carriers rendering a variety of services substitutable over a wide range of traffic on all but country routes, and of the marked development of private carriage in which the shipper and traveler can determine service standards and the cost of transport for themselves. It is useful to analyze the firm numbers, the character of the services, rivalry patterns, and cost characteristics within each of the five major agencies. But since markets in which intercity services are procured typically offer interagency alternatives, the total number of firms competing for traffic on a particular route is greater than within any one field. Thus, the range of service offerings to shippers and travelers is larger and there is greater likelihood that rate and service rivalry will occur. Cross-competition of carriers of different types is the prevailing market condition in very numerous instances. The services of these different carriers are not strictly homogeneous, but with rate differentials reflecting quality differences they are nevertheless closely substitutable in a great many cases as changing distributions of traffic and shipper action clearly show.

The change from a market condition where shippers had no satisfactory alternate to rail service to one where good or limited substitutes existed at most points and for most commodities came gradually after World War I. Improved highways and motor vehicle transport were the dynamic factors contributing most to the growing competitive character of transport markets. Truck competition at first centered upon merchandise traffic, high-valued commodity traffic and the shorter hauls. But, as highways improved, highway vehicles became more efficient and the trucking industry became more experienced, the range of truck hauls appreciably widened both with respect to commodities and distance of the shipment. So long as motor carriers remained unregulated, this development progressively limited the freedom of rail-pricing officials to exact discriminatingly high rates. Heavy loading and bulk commodities and long-haul traffic constituted exceptions accounting for large but varying shares of the remaining rail traffic. For some years the railroads held to or raised existing levels of freight rates on such traffic while they lowered other rates to meet truck competition in specific actions running into the thousands. But the railroads increasingly had to move with caution in the high-rate sectors—so much of the so-called noncompetitive traffic proved subject to eventual partial substitution that high rates tended to boomerang. High rates quickly brought about loss of much short-haul traffic, even in such commodities as coal, but diversion from the railroads has now extended to many

items of transcontinental traffic.[11] The necessity of considering the economic situation of shippers far distant from markets also restrained piling on rate increments above the variable costs of such traffic.[12] In many cases, high rates stimulated substitution of processing for transportation of perishables and encouraged other locational changes minimizing transfer costs. Although services were not strictly homogeneous and substitution possibilities were not equally good in all markets, the pricing discretion of rail bureaus was progressively limited on a wide front.

Other transport techniques, some old, others newer than motor vehicle transport, also increased competitive elements in many markets. Even during the greatest supremacy of the railroads, water carriers continued to serve in the coastal trades, the Great Lakes and some inland waterways. The continuance of independent water lines in competition with the railroads was fostered by government promotion of waterways and regulatory restrictions upon the railroads as railroad acquisition of some water routes stimulated public fear that the full advantages of competitive rail-water services might not be achieved.[13] Such enactments as the Panama Canal Act, clauses limiting long-and-short-haul discrimination under the Fourth Section, and provisions requiring joint rail-water rates and physical connections, widened the areas of competition between rail and water lines. Pipe lines also developed and, despite monopolistic integration with the major oil companies, in time diverted much of the overland oil traffic from the railroads. The coastal tankers, barge lines and trucks also shared heavily in this important traffic.

Emphasizing bulk commodities such as coal, iron ore, grain, sulphur and sand and gravel, the water lines gave competition to the rails largely between major centers on natural waterways and channelized rivers already having alternative rail services. The water services lessened discrimination where water services were available but did not afford relief from discrimination against intermediate points on railroads and communities in land-locked areas. In fact, by stimulating low competitive rail rates to and from seaports and river ports, water transport was often cited as the controlling factor in basing-point rate making in the South and transcontinental and coastal long-and-short-haul discrimination. One wonders, however, how frequently railroads shared in water competitive traffic uneconomically on the basis of rates less than their average variable or marginal costs.[14]

Of far greater significance in interagency market situations was the combination of pervasive motor carriage and limited water carriage. The water lines normally insured shippers of heavy-loading and bulk commodities that rates would be closely related to carrier cost-of-service by water. Although water service is distinctly inferior in speed and completeness, quotation of differential under rail rates made rail and water services highly substitutable within the

[11] In *Transcontinental Motor Rates-Increases*, I. & S. Docket No. M-2833, decided April 11, 1949, Division 3 of the Interstate Commerce Commission observed this tendency as follows: "The Bureau [Rocky Mountain Tariff Bureau, Inc.] schedules are participated in by 452 motor carriers and Consolidated's schedules by 120 motor carriers, respondents herein, and their operations collectively cover most of the United States. Nine of the respondents transport transcontinental traffic principally in single-line movements. One respondent transports traffic from the east coast to the west coast in single-line service. The remaining carriers participating in the suspended schedules interchange transcontinental traffic as many as two or three times in order to render the service." (Mimeographed report, pp. 2-3.)

[12] See D. Philip Locklin, "Freight Rates and Related Problems," *Transportation and National Policy* (Washington: National Resources Planning Board, 1942), pp. 103-106.

[13] Kent T. Healy, *The Economics of Transportation*, *op. cit.*, p. 264.

[14] *Ibid.*, p. 227.

limits of water tonnage and sphere of traffic adaptness. Where the barges and ships did not ply, trucks always did. Traffic demanding speed, service completeness and careful handling did not shun the trucks as it did the water facility. More recently, air carriers have become available for long-distance transport of commodities demanding great speed. Both scheduled and nonscheduled lines now compete with railway express and motor carrier services. Air cargo excels where the average haul is very long.[15] Air carriers may never become serious competitors for tonnage, but certainly they will limit rate discrimination above full costs in connection with merchandise and express services. Their rapid rise after World War II when entry was still free to veterans and others affords another example how unexpectedly a new and aggressive group of sellers using new techniques can arise in transport.

The influence of newer techniques upon passenger markets has also been marked, but they have not increased the number of carriers so greatly. Until the coming of the auto and the bus, the railroads did not face widespread rivalry for passenger traffic. The steady decline in the rail share after 1920, however, reflected diversion to highway carriers, particularly the automobile.[16] Nevertheless, the market situations in the rail and bus industries range from monopoly to oligopoly of a few firms; never a close approach to pure competition. Although private automobiles numbering millions have diverted much traffic from both, the railroads, except for low tourist and excursion fares, have not competed actively with those vehicles. The rails have been content with long-distance travel; that requiring comfortable accommodations; and a "fair division" of the remaining coach traffic with the bus companies. Purchase of interest in the major bus companies was a more common pattern of action. As the rail coach and pullman services typically operated in the prewar period with low average load factors and as these services seem to be gradually resuming that uneconomic condition, economies of utilization obviously could be gained if the railroads could attract more passenger traffic by lower fares and improved services. World War II gave a demonstration of the profitability of high load factors, but the mass transportation role of the railroads during that period was possible because of special military transport demands and severe restrictions upon automotive transport. Although the public would not favor continued restrictions upon auto travel, far lower coach fares coupled with improved services might tap elastic demands and improve load factors considerably. The growing air coach services at fares ranging from 3 to 4.5¢ per mile may stimulate greater competitive rivalry in fares and services by the railroads in the future, for so much of the passenger traffic has been sacrificed already that the alternative is drastic curtailment of unprofitable services.[17]

The railroads experienced a long period of unsatisfactory earnings during the 1930's although they continued to give adequate quantities of service and to improve their equipment, even in bankruptcy and trusteeship. One factor was diverted traffic to agencies render-

[15] The average cargo haul of the nonscheduled air cargo carriers reporting to the Civil Aeronautics Board on operations during May and June 1946 ranged from 1,173 to 1,515 miles.

[16] *Transportation and National Policy, op. cit.*, p. 174.

[17] Kent T. Healy, *The Economics of Transportation, op. cit.*, pp. 272-279. See "Estimate of the Cost of Providing Air Transportation by Intrastate Scheduled 'Coach Class' Air Carriers between the California Metropolitan Areas of San Francisco-Oakland and Los Angeles," Case No. 4994 et al., California Public Utilities Commission, San Francisco, California, November 1, 1949.

ing better service and lower rates. But unprofitable railroading was more the result of low depression levels of industrial traffic than of diversion or any return to ruinous competition as during the 1870's and 1880's.[18] The growing competition was obviously not ruinous to the truckers who even before 1935 steadily expanded their numbers and equipment out of revenues. The use of private trucks steadily widened. For-hire trucking grew and prospered, although many individual carriers, as would be expected in any competitive field in time of general depression, went out of business and were replaced by others. Some large trucking companies developed, but usually without dominating the markets in which they were operating. The motor carrier certificate cases and records of the Interstate Commerce Commission are replete with facts confirming these observations.[19] Unlike railroads in an earlier period, agreements were not generally substituted for rate cutting either as between rails and motors or as between motors and motors. The motor carrier rate bureaus grew up with the NIRA and the Motor Carrier Act of 1935, not before those acts of governmental encouragement.[20] Although rate agreements might have come in time, comment on this possibility partakes of conjecture.[21]

III. Market Situations in Highway Transport

Special attention to the highway carriers' organization is justified by their supreme role in short-haul markets and the widespread competition private and for-hire motor carriers give the railroads. Except on country routes of the slightest traffic densities, a number of carriers ordinarily offered identical services. On a great many routes where traffic flows were heavy, as between important centers of population or producing areas and populous cities, many common and contract carriers on each route were the rule rather than the exception. In addition, there were usually a number of private carriers.[22] Carriers specializing in traffic of like kind used standardized equipment in each region, with similar motive power and labor requirements. All were subject alike to the conditions laid down by the several states regarding the manner of use of the public highway. All were subject to the same taxes, although fixed registration fees bore more heavily upon carriers with low annual mileages per truck than those who could utilize their equipment intensively. Except for quantity purchase discounts and varying entrepreneurial withdrawal rates, the costs of other inputs were comparable in each region. And until NIRA-sponsored collective action began to have influence in 1934, unbridled competitive rivalry affecting both rates and services was the common pattern of individual firm action in trucking. No truck traffic was secure from attempts by other truckers to convince the shipper of service superiority or ability to render service at lower rates. Rates were frequently quoted on a contract basis, and no substantial evidence exists that agreements between truckers substituted for periods of active competition as in railroading and ocean shipping. Nor were dominant firms in evidence. Certainly, large-scale operation and monopoly did not generally result from the strong competitive rivalry up to 1935.[23]

[18] *Transportation and National Policy, op. cit.*, pp. 93, 103, 115, 171, 174-175, 206-208.

[19] *Ibid.*, pp. 205, 210-211; *Federal Regulatory Restrictions upon Motor and Water Carriers*, S. Doc. No. 78, 79th Cong., 1st sess., 1945, pp. 58-65, 67-68, 304-316, 320-321.

[20] *Transportation and National Policy, op. cit.*, pp. 215-216, 219-221.

[21] See D. Philip Locklin, *Economics of Transportation, op. cit.*, p. 702.

[22] *Transportation and National Policy, op. cit.*, p. 205.

[23] See Ford K. Edwards, "Cost Analysis in Transportation," *American Economic Review*, May 1947, pp. 446-454,
(Footnote 23 continued on page 239)

Even the much greater financial strength of the individual railroad compared with the miniscule trucker did not lead to ruinous competition that drove the truckers out or forced them to merge with the railroads. On the other hand, competition was often described as "keen" and "vigorous" or "savage" and "destructive" depending upon one's point of view or partial interest in the benefits of restriction of free competition by government power.

Perfect competition probably did not exist even on highway routes most favorable to large numbers. But as close an approach to pure competition as modern transport has produced did obtain until the law interfered with free entry and price competition.[24] On the dense routes many carriers typically rendered highly similar services and competed on a price basis.[25] Shippers made increasing use of truck services and used them as a wedge to obtain improved services and lower rates from the railroads. Only a few shippers expressed dissatisfaction with the conduct of truck operations and pricing. Those which did, such as the fruit and vegetable merchants, elevators, and old-line wholesalers, complained of loss of business rather than discrimination as marketing became less tied to rail transport, transit privileges and volume warehousing. General shipper complaint of rate and service abuses in trucking was non-existent and shippers were usually opposed to restriction of entry and minimum rate regulation until it became politically inevitable under depression emphasis upon security and restrictionism.

The current pattern in trucking has many more elements of monopoly than that prevailing before federal control beginning in 1935. Except in private carriage and some exempt areas, free entry has been ruled out by limited certificates and permits in both intrastate and interstate spheres. Thus, the strength of potential competition has been deliberately lessened except where exempt and private trucking are feasible. Regulated truckers have been highly restricted as to commodities, routes and territories, points, types of service, the regularity of the service, and return hauls.[26] War experience proved beyond question that these certificate and permit restrictions destroy the "tramp" characteristic of trucking—much of its fluidity.[27] The cases of duopoly, oligopoly and monopolistic competition have been greatly increased by government decision. Extremely varied and complex market situations have arisen, with many rigidities impairing market adjustment and with rivalry in service considerably replacing price competition. Prices administered by rate bureaus, once rare, are now common, with truck rates adhering more closely to the rail value-of-service pattern. Trucking firms have grown larger, since fewer concerns exist under restricted entry and unrestricted withdrawal.[28] The determination of historical rights to operate on public highways

457. From a study of 177 motor freight carriers in the Central Region, it was concluded "that for the Class I general commodity carriers between 90 and 100 percent of the operating expenses are directly proportional to output." Chart II, p. 451, which relates average total unit cost and marginal cost per ton-mile to size in terms of thousands of ton-miles per highway route-mile, shows almost horizontal curves—evidence of constant costs rather than economies of scale. See also, D. Philip Locklin, *Economics of Transportation, op. cit.*, 689-700; *Transportation and National Policy, op. cit.*, pp. 209-211; and Clair Wilcox, *Competition and Monopoly in American Industry*, TNEC Monograph No.21, 76th Cong., 3d sess., 1940, pp. 60-61.

[24] *Transportation and National Policy, op. cit.*, pp. 239-240.

[25] Kent T. Healy, *The Economics of Transportation, op. cit.*, 269-270.

[26] For a detailed description of division of markets among carriers by operating-authority restrictions in certificates and permits granted by the Interstate Commerce Commission, see *Federal Regulatory Restrictions upon Motor and Water Carriers, op. cit.*, pp. 20-166.

[27] *Ibid.*, pp. 32-33, 167-207.

[28] *Ibid.*, pp. 48-66, 91-96; Kent T. Healy, *The Economics of Transportation, op. cit.*, 545, 547; and *Transportation and National Policy, op. cit.*, 217-219.

under the "grandfather" clauses of the Motor Carrier Act has created such regulatory restrictions, but they have not been basically altered or removed, even where uneconomical, under the powers possessed by the Commission to grant extensions of commodity, route or return-haul authority under public convenience and necessity or consistency with the public interest tests.[29]

The intercity bus industry developed differently. After an extremely competitive jitney period, the number of companies became far more limited than in trucking. Duopolies and oligopolies of a few were common even where traffic was dense and even on unregulated interstate routes (before 1935). Monopolies were found elsewhere.[30] The need for fixed and frequent schedules, dependable and safe service, and financial responsibility for lost baggage and ticket returns were factors contributing to emergence of dominant firms. Opportunities to improve bus utilization and load factors may have been better in large firms. However, certificate regulation in the intrastate sphere, dating from 1921 or earlier, also was a factor limiting the number of firms, even on the interstate routes. Without short-haul intrastate business, interstate operations were often not profitable.

Data are not available to show the number of firms in each type of transport which engage in effective competition between pairs or groups of points and along particular routes. Such inductive approach would require collection of vast and complex information with respect to thousands of pairs of points.[31] Carriers would have to be grouped according to the types of services rendered, legal limitations upon services offered, commodities carried, rates charged, and type and capacity of equipment. Enough information is available in Interstate Commerce Commission Reports, Motor Carrier cases and other sources to indicate that intercity transport markets generally have multiple-firm competition, with the number competing large on important routes, small on branch or feeder routes. In trucking, numbers of firms competing on given routes are lessened by commodity specialization, a considerable amount of which appeared before operating-authority restrictions developed. Firms of each agency type contending for general commodities or special commodities largely render homogeneous service within each category of traffic. Except in passenger traffic, advertising on emotional appeals is little used and industrial traffic managers are well informed. Even though service qualities—speed of delivery, regularity of schedules, completeness and flexibility of service, loss and damage risk—offered by carriers of unlike types are materially different, rate differentials reflecting value judgments of shippers and cost differentials give far greater substitutability than is often realized. Thus, the extent of pure oligopoly, pure competition and effective competition is often understated. Monopsonistic or oligopsonistic conditions of purchase, however, have prevailed in a number of cases and the relatively small-scale truckers have

[29] The Commission is engaged in an effort to group commodities named in certificates and permits issued in the future, apparently in recognition of rigidities and diseconomies. See, *Descriptions in Motor Carrier Certificates*, Ex Parte No. MC-45, Notices of October 10 and November 17, 1949, and March 16, 1950; also *Transport Topics*, January 9, 1950, p. 6.

[30] *Transportation and National Policy*, *op. cit.*, pp. 401-402; 407; 41 M.C.C. 269 (1942).

[31] See Frederick W. Gill and Gilbert L. Bates, *Airline Competition* (Boston: Graduate School of Business Administration, Harvard University, 1949) for perhaps the most comprehensive attempt to measure the extent of effective competition by carriers serving pairs of points, in this case domestic scheduled air carriers competing for passenger traffic. More studies of this type are needed; it is to be regretted that the Interstate Commerce Commission has not arranged motor carrier statistics to show the number of certificated lines authorized to serve each route and commodity classification.

sought regulatory protection against buyer pressure for low rates. Demand for transport is also affected by the monopolistic competition in commodity markets, but that condition does not affect the character of competition in transport markets which are separate.

Another general point worth stating is that transport competition appears to have had permanency. Though lessened by the enlarged sphere for rate bureau procedures delaying or stopping rate and service action by individual carriers and though restricted by regulatory suspension of rate filings and control over service innovations, considerable rate and service rivalry still exists, particularly as between agencies of transport. More rivalry would take place in the more competitive fields if independent action were not repressed and entry were not restricted. This in turn would increase interagency rivalry. Freedom to enter private carriage and certain exempt carrier classifications and the oligopolies of quite a few firms still give many opportunities for competitive rivalry to break out and for enterprising managers to find a firm where new ideas can be tried. The staying power of transport competition also seems proved by the necessity of entry and minimum rate controls to limit competitive elements and to increase monoply elements. It is from the regulated common carriers with adequate authority in air, truck and barge transport that the greatest outcry comes when proposals are made to liberalize or abandon entry control.[32] If competition were easily destroyed and monopoly inevitable, protected firms would not have to feel so concerned over such proposals.

[32] See *Transport Topics*, January 9, 1950, p. 6; A. Markowitz, "A Trucker's View of the Sawyer Report," *Traffic World*, March 18, 1950, pp. 63-65. It is the scheduled air lines who have pressed the CAB to close entry to the nonscheds and to issue cease and desist orders to stop regular flights, even if it affects service.

Summarizing, the market situations in present-day transport are particularly complex. It is difficult to evaluate the effectiveness of competition in these markets for that reason. However, it is clear that comprehensive economic control cannot be explained in terms of the economics of "natural" monopoly. Since transport markets would vary from relative monopoly to pure competition were entry and minimum-rate controls nonexistent, the broadest characterization that may be justified is that they have "many of the attributes of monopolistic or imperfect competition."[33] However, such rough generalization fails utterly to give definite guides to public policy. The reason is that it does not reveal the economic results of either regulated or unregulated markets in transport. Only resort to study of market facts and the probability or lack of probability of improving the resource allocation in transportation by means of alternative schemes of control can provide realistic economic guidance for regulatory policy.

IV. Implications for Public Policy

In the last two decades a great deal of controversy has arisen as to the proper direction for public regulatory policy in transport. The question in 1920 was private ownership of the railroads vs. continued government operation. This was resolved by returning the roads to private management but under a strengthened scheme of regulation to shore up rates and earnings and to assist weak railroads by consolidation. Thus, at the very time that highway modernization and motor vehicle development were beginning to bring about a general loosening of monopoly elements, more emphasis was placed upon regulation. The transportation problem

[33] Burton N. Behling, "The Nature and Control of the Transport Market," *Transportation and National Policy, op. cit.*, pp. 238, 240-241, 244, 247.

still appeared to legislators as a railroad problem, but by the early 1930's it was quite evident that the country's transport problems had broadened and that changed conditions had greatly altered the market situations confronted by the railroads. At this time the Congress limited the alternatives to two—either relaxation of railroad regulation or extension of similar control to motor and water carriers. Government ownership was suggested by a few troubled by the ineffectiveness of the consolidation plan and some advocated transport companies using all techniques of transport according to managerial discretion. But the real controversy revolved around the effectiveness or destructiveness of the widespread competition that had developed with the aid of public facilities. The serious unprofitability of many railroads, although considerably a depression phenomenon, enhanced interest in this subject. That condition contributed much support for undertaking to restrict entry and minimum rates of motor and water carriers. The existence of subsidies to several types of transport but not to the railroads also was cited as a factor requiring equal regulation. A decision eventually was taken in 1935 to move in that direction, and the Motor Carrier Act began an unbroken trend in federal transport regulatory policy, the most recent manifestation of which was enactment in 1948 of the Reed-Bulwinkle bill to exempt common carrier rate bureaus within each agency from the antitrust laws.[34]

Nevertheless, the controversy over the role of competition in transport has not ended. Dissatisfaction has been growing with regulation which restricts enterprise in transport. Those interested in the railroads now are beginning to understand that regulation of the entire common carrier market will bring no profit millenium.[35] Traffic diversion, except during war, continues unabated and the railroads cannot long get away with extremely high rates, unless they should be content with declining shares of the traffic and employment.[36] Greater restriction of railroad competitors seems wholly unacceptable to the shippers and motor vehicle owners. Rather, support has grown for user charges in air and water transport to equalize carrier cost conditions as a more acceptable alternative. Although not much political support has developed for a policy of abandoning the restrictions upon competition, the subject has been discussed and doubt has increased over the reality of measureable net economic benefits from some of the restrictions that have been imposed.[37]

It is difficult, indeed, to explain, on economic grounds alone, why the Nation embarked upon the type of control initiated by the Motor Carrier Act.[38] The material benefits from pervasive ownership and use of automobiles and trucks upon improved highways were commonplace facts. A highly beneficial highway carrier system had developed successfully under free competition, with the aid of public highways. It was in no real danger of being lost, either from being swallowed up by the railroads or from lack of sufficient carrier profitability to stimulate adequate investment. To protect their traffic from diversion and from drying up for lack of demand in the

[34] Passed over the veto of President Harry S. Truman. See *Message from the President of the United States*, S. Doc. No. 169, 80th Cong., 2d sess., June 12, 1948, and Sec. 5a, par. (4), Interstate Commerce Act.

[35] See the report of an address of President C. M. Roddewig, Chicago & Eastern Illinois Railroad to the College of Advanced Traffic, Chicago, in *Traffic World*, April 1, 1950, pp. 17-18.

[36] *Traffic World*, March 25, 1950, pp. 151-152.

[37] *Issues Involved in a Unified and Coordinated Federal Program for Transportation*, a report to the President from the Secretary of Commerce, December 1, 1949, pp. 32-35.

[38] G. Shorey Peterson, "Motor-Carrier Regulation and its Economic Bases," *The Quarterly Journal of Economics*, August 1929, pp. 604-647.

depression, the railroads greatly improved their services and equipment. They also reduced thousands of particular rates or groups of rates to meet competition. Their manners toward shippers and travelers improved and discrimination lessened as competition forced rail rates in closer relation with cost. To those in touch with the transport markets, these innovations and improvements were beyond dispute.

The railroad problem and objectionable features of substantially free competition in other agencies were cited by those who supported extension of comprehensive control according to the rail pattern. Rate instability, low wage rates, competitive wastes, insufficient investment by railroads, and changing geographic and commodity rate relationships were among the conditions termed objectionable. Unequal regulation and subsidies were regarded as basic conditions leading to these conditions, although some applied the theory of "natural" monopoly where it did not fit. The obviously different cost conditions in the several forms of transport were disregarded in the drive to minimize through regulation the effects of public aids to air, motor and water carriers upon the railroads. Although some of the so-called objectionable aspects of competition can be questioned on grounds of the logic of public interest, the disregard of the varying economic characteristics of the different transport agencies in the present-day pattern of control is the foremost source of critical opinion.

During a prolonged depression and a period of rapid substitution of technological improvements in transport, rate instability and low wages in fields not yet heavily unionized were hardly surprising. Deflation implies considerable price reduction wherever rivalry can and does occur; where not, prices are maintained but output and employment show instability, tending to decline. In transport there was no lack of rivalry among competing firms in motor and water carriage and between these types of carriers and the railroads. Rate bureau procedures, long controlling in the rail field, slowed rail responses in meeting lowered rates or better services offered by their competitors. But they were no insurmountable obstacles. Nor was regulation. For example, exceptions to permit long-and-short-haul discrimination to meet competition were ordinarily granted, often with little delay. Whether the intraagency and interagency price cutting that occurred can aptly be described as "chaotic" and what such characterization implied with respect to the public interest was never articulated very fully.

The relation of regulated competition to earnings expectations was less indefinite. The demand for transportation of many commodities is relatively inelastic. Since growing competition introduced elasticity to a considerable extent it follows that if the competitive elements could be successfully limited by entry, operating-authority, and minimum-rate controls the carriers would increase their revenues, at least in the short run. This appeared one of the objectives of the controlled competition scheme. To the extent not just a political move to divide markets, rig rates, engage in rate discrimination and generally to cartelize for private gain, the public logic, if any existed, for the policy must have been to increase investment in the railroads through greater earnings. While the larger truckers, after their NRA experience, clamored for continued controls over rates and services, evidence was lacking that competition in that field was destroying itself or producing an in-

sufficiency of truck services. Whether railroad investment was insufficient is far more complicated.[39] Depressed earnings from low levels of traffic, of course, lessened investor interest in railroad securities other than equipment trust certificates and other A-1 securities. However, in view of the wartime ability of the railroads to handle greatly expanded levels of traffic, the case for restrictionism on investment grounds cannot be made too convincingly. The underlying condition affecting traffic and revenues that seemed most questionable on economic allocation grounds was payment of subsidies to competitors of the railroads. But while widespread awareness existed of the relation of public aids and subsidies to traffic diversion and railroad investment, the regulatory policy enacted did little to come to grips with that facet of the problem. After 15 years of the new concepts of regulation, attention is still being given to the public-aids question and the country seems very little nearer to a solution of the basic railroad problem.

Except for obvious under-utilization of railroad capacity during the Great Depression, little factual evidence of economic wastes from duplication was shown by advocates of controlled competition. The recent war and peak postwar business levels demonstrated forceably that all so-called excess or reserve capacity in each transport field was needed. This fact ended charges of wastes of excess capacity and only recently have official suggestions been made that such a problem is returning. Nevertheless, experience reveals that greater transport facilities are demanded for commerce and national defense than the market will support at all times with earnings acceptable to investors. However, wartime profitability cannot be legislated for more normal periods. Nor, except for war necessity, will people accept gross restrictions curtailing facilities in other agencies sufficiently to raise appreciably the levels of railroads returns. Therefore, the answer seems to lie in the direction of doing what can be accomplished toward equalizing cost conditions through initiating user charges in the areas where none exist or adoption of sufficient subsidy for railroads to guarantee the additional investment that may be found necessary for the purpose of national defense.

How much the railroads might benefit from an economic adjustment bringing full user charges on new airway and waterway projects and charges at least sufficient to recover the annual maintenance on old projects has not been measured. With higher carrier costs in these fields, rates would normally have to move upward. Rail rates could then be maintained at higher levels or some traffic could be diverted back to the railroads. Traffic would not be returned to the rails in those cases in which tolls would not wholly remove the inherent advantage that water carriers have over railroads, i.e., bulk cargo on the Great Lakes. User payments have been traditional in all states for motor vehicles using public highways and in many cases return all reasonably assignable highway costs. To the extent that intercity trucks of large size and weight have not been required by the states to pay a legitimate share of the costs of the highway facilities they use in common with other vehicles, adjustments of truck user fees would limit diversion from the rails and perhaps return them some traffic. Nevertheless, the better service of the trucks, even at higher freight rates, might still induce most of the present

[39] For a positive view on this subject, see Charles L. Dearing and Wilfred Owen, *National Transportation Policy* (Washington: The Brookings Institution, 1949), pp. 272-304, particularly pp. 290-293.

commodity traffic on the highways to remain there. Passenger traffic via automobiles would certainly remain on the highways as these vehicles appear to pay adequate user fees. Since air cargo rates are high relatively, cost increments from greater charges for airports and user payments for airways might have considerable effect on the airline share of the traffic. Even though the extent of diversion attributable to subsidies probably has been too limited to account for all railroad financial difficulties,[40] an economic allocation of resources would seem to call for extension of user payments for public facilities accorded air and water carriers and effort to determine objectively whether existing truck user rates are adequate.

The view has strengthened that even railroad regulation has contributed to the present troubles of the railroads. Thus, criticism has been directed against the delays which have ensued under ICC procedures and emphasis upon discrimination removal in adjustment of rail rates to higher cost levels from 1946 to 1949.[41] Even with unusually high traffic in that period, the railroads have not earned profits comparable to those of some industries. Their reserves for tiding then over depression periods were thus limited. The decline in the rate of investment in the railroad field in 1950 from the high levels during 1948 and and 1949 again raises the threat of inadequate investment.[42] There can be little doubt that the railroads could have increased their earnings during the 1946-1948 period had their managerial judgment on the rate increases which the market would justify been accepted earlier or more completely by the ICC and the shippers. Serious doubt is justified, however, over the ultimate beneficial result to the roads from a high-rate policy. They might have priced themselves out of the market to an even greater degree than has taken place. The greater profits might have invited additional wage and hour demands. And the higher revenues would have exerted less pressure to substitute Diesel locomotives and other methods of economizing operating costs.

It is almost certain that neither greater freedom to adjust the general rate level nor adoption of the principle of uniform application of user fees would solve the railroad problem that now reveals itself in substantially the same form as prior to the war. Wider application of user fees would come only gradually and their effect would be limited. National defense requires error on the side of maximum, not minimum, basic transport facilities. Excess capacity for all but extreme peak needs will be insisted upon as a matter of national policy. A very large part of effective competition from truck and water transport comes from private carriers, the bulk of it in the case of trucks. Moreover, the declaration of policy and standards in the Interstate Commerce Act on the whole frown upon restricting motor and water carriage where costs are shown to be lower than rail costs or where the services are unique. Certificated carriers have complete freedom to expand their equipment as market demand justifies. Thus, the stage is set for an intensive interagency scramble for traffic, involving rate cutting and service competition. Such rivalry has already begun on the part of the rail carriers.[43] Therefore, if their decisions are realistic, the railroads will have to

[40] *Ibid.*, pp. 301-302, footnote 48.

[41] *Ibid.*, pp. 278-293.

[42] Estimated gross capital investment of Class I railways for the first six months of 1950 is down 31.5 percent under that of the same period of 1949.

[43] Eastern railroads have filed reduced carload commodity rates on iron and steel products about 25 percent below existing rates, effective May 1, 1950. *Traffic World*, March 25, 1950, pp. 149-150, and April 1, 1950, p. 7.

continue to reduce costs, improve services, and cut rates wherever they have been losing traffic to other agencies. Perhaps a policy of meeting competition aggressively is the best assurance for the future. While it may not prove adequate to restore rail earnings sufficiently to satisfy investor expectations, the public would stand to gain and also would have a better test of how much aid might eventually be necessary to produce additional rail investment or to compensate the railroads for the effects of excess capacity needed for the national defense.

Competition on the sellers' side is many-sided in transport. Hence, consideration should be given to the other groups of carriers whose freedom to compete has been restricted by entry, operating-authority, and minimum-rate controls. For what end? If controlled competition and coordination by regulation strengthens the regulated carriers, brings economies of scale and load factor, and stimulates improved services, then the Motor Carrier Act and the Transportation Act of 1940 have increased the effectiveness of competition against the railroads—certainly not a tenable objective for the rail sponsors. If, on the other hand, regulated competition has not brought elimination of wastes but has intensified them, then the public has lost without the railroads having benefited very much. The railroad earnings problem seems continuous after a short wartime alleviation. Rapidly rising truck registrations are the best evidence that demand for trucking services remains unabated. But are the full benefits of greater use being realized under existing patterns of control?

Reference has been made to regulatory restrictions upon operating authority of intercity motor carriers of property in interstate commerce which have arisen from certificate and permit regulation.[44] These do not have obvious sources of economy when consideration is given to inherent flexibilities of the truck, the small size of the carrying unit, and the apparent absence of economies of scale and utilization in that industry. Adequately certificated truckers have been stimulated to grow larger without visible sources of lower cost to the public. Carriers with inadequate operating authority (a large number) cannot utilize their trucks fully. Diseconomies and lack of profit opportunity results.[45] These conditions require higher truck rates and, under rate bureau-regulatory procedure, market leadership has been greatly stimulated. Higher rates than otherwise would occur seem a logical expectation even without considering the necessity of passing on regulatory and rate-bureau costs which must be considerable. Less competitive pressure may be placed upon the railroads and in turn the railroads have not always exerted full pressure upon the motor and water carriers. Somewhat greater profitability for some of the carriers may result—an apparent purpose of controlled competition. It does not necessarily follow that this result is beneficial from the whole public's point of view. Higher costs under protected markets are quite likely and large trucking firms may operate with higher unit costs. The same higher profits to those advantaged can be imputed from protective tariffs, yet econo-

[44] A sample study of the Board of Investigation and Research found that 62 percent of the intercity truckers subject to ICC regulations have been restricted to specified commodities, often only one commodity or commodity group. A third of the carriers studied had restrictions preventing returning their vehicles to points of origin with freight, either in whole or in part, because return-haul authority was lacking or limited. Circuitous operation via gateway points were required of certain carriers and others lacked authority to serve intermediate or off-route points along their routes. See footnotes 19, 26.

[45] *Federal Regulatory Restrictions upon Motor and Water Carriers, op. cit.*, pp. 28-45, 48-74, 77-108, 110-118, 122-145, 188-207, 237-246, 275-297.

mists have almost universally doubted the economic wisdom of the policy. Are there other, less wasteful means of assuring sufficient profitability in private rail transport?

That is the underlying question that policy makers face again in 1950. It will, of course, persist so long as the railroads, as a whole, fail to adjust their facilities to the long-term declining share of the aggregate traffic which their pricing policies, competing technologies and public aids force upon them. The policy of developing with public financing greater air, water and perhaps highway facilities than the market would support has increased the rate of technological substitution, but it would have had a serious effect even had adequate user charges been in effect more widely. That new means of transport are preferred to the old and the old have not found a way to prevent substitution is a stubborn fact that varying policies will not completely alter. Under the circumstances, the railroads can best solve their problems by intelligent pricing and effort to improve their services and cut their costs. It seems clear that aggressive competition is more likely to achieve these things than dependence upon regulation or waiting for government promotional policies to change. It is comforting that greater awareness of this truth exists in railroading today than in the prewar period.

Having run through a cycle of encouraging high rail rates in the twenties and thus greater growth of competing forms of transport and having subsequently restricted competition both within the newer agencies and between them and the railroads in order to ameliorate adverse effects of public aids and changing technologies, the Nation is again reexamining its transport policies. It is constructive that a broader view of the problem now seems possible with the relief that a full-employment economy gives from emphasis upon restrictionism. Historical perspective should be better than in the 1930's as a result of the knowledge which experience has added on the possibilities of improving transport conditions by uniform regulation. Competition, too, can be evaluated with less emotionalism and faith that its removal or control will solve all the ills in the field of transport. Through the reorganization measures already initiated by the President and those in process, an improved government structure to deal with the public aids question is indicated.[46] If implemented by an adequate central research staff, new projects should be screened more competently and thoroughly in the future. Further studies, following upon those of the Board of Investigation and Research, can be made of the effectiveness in the public interest of existing policies, including regulatory policies. Greater Congressional receptivity toward extension of user chargers, where practicable, seems evident. Thus, although the ideal solution will not prove possible, the outlook for improvement in public transport policies is promising.

The practical solution to come will improve the allocation of resources in transport if greater willingness is manifested than in the past to face up to the realities of both competition and regulation. Gross restriction of competitive functioning on legalistic and protection-

[46] Following through with work on reorganization of the Commission on Organization of the Executive Branch of the Government, headed by former President Herbert Hoover, the Congress has approved of a reorganization plan transferring the Bureau of Public Roads to the Department of Commerce. More recently, the Congress transferred the functions of the U. S. Maritime Commission to that Department, establishing a three-man Federal Maritime Board with regulatory functions and a Maritime Administration with ship construction and administrative functions; also included was authorization for establishing an Under Secretary of Commerce for Transportation. The Department of Commerce now has the transportation role originally planned for it.

ist grounds is too simple. Areas exist in transport where competition requires limitation for best use of resources. Regulation cannot, however, do the work of competition in stimulating new methods, efficiency and improved services. Regulators should have better and more specific reasons for restricting enterprise in competitive fields than the pressures of those advantaged by the hobbling of their competitors or the ruling out of potential competition. Many people have been shocked by the CAB's series of actions designed to put out of business enterprisers in the new air-cargo and air-coach fields on general claims, largely by those in position to receive direct benefit, that somehow regularly scheduled services will be impaired or government payments will have to be increased. Although not complicated with the subsidy-minimization problem, certificate control and operating-authority restrictions discouraged many enterprisers in the interstate motor carrier field. If regulatory statutes require actions preventing pioneering enterprise and driving carriers serving the public satisfactorily from the field, there should be clear and material benefits or economies in each case or the legislative standards should be changed. While limitations have been established by the Congress which maintain a considerable range for interagency competition, even protected by continued application of the antitrust laws, much remains to be done toward finding more selective and beneficial methods of controlling competition. Except in those cases where specific improvements in service or reductions in unit costs will result, a general policy of favoring competition would seem the more constructive from a public point of view. Unless control processes are overhauled from within, complete abandonment or considerable modification of certain features of the present regulatory scheme whose economic results have questionable net public benefits may be desirable.

Telephone Rates and Cost Behavior

By JOSEPH R. ROSE*

I. Introduction

IN the present postwar period the Associated Companies of the Bell Telephone System, which furnish communication services by telephone, have petitioned state and local regulatory authorities for increased telephone rates in every state in the Union.[1] These authorities in reviewing applications for higher rates have had to face not only all of the conventional difficulties inherent in the traditional process of public utility rate making, such as the establishment of a rate base and a fair return, but also very special problems peculiar to the structure of the Bell System. The problems involve cost determination, and we believe that at least part of the confusion presently prevailing on the subject may be dispelled by use of theoretical concepts, which are familiar matter to academic economists.

The Associated Companies, 22 in number, function as the operating units in the Bell System, the activities of each one embracing usually an entire state. They render three basic telephone services, namely, local exchange, intrastate toll, and interstate toll. Local exchange and intrastate toll calls are handled almost exclusively on facilities and by personnel of the Associated Companies. Interstate toll services, however, are furnished in collaboration with the Long Lines Department of the American Telephone and Telegraph Company (American Company).[2] Interstate calls originate and terminate on the same facilities used by the Associated Companies in rendering intrastate services; the Long Lines Department participates in such calls only after their inception and before their consumation. The situation is further complicated by the division of regulatory authority in the field of telephone communications. Intrastate calls, both exchange and intrastate toll, are subject to control by state public utilities commissions and interstate toll calls by the Federal Communications Commission.

In regulating intrastate rates, state commissions segregate intrastate from interstate property and expenses. This is necessary not only to determine the cost of intrastate services but also because interstate services are subject to the exclusive authority of the Federal Communications Commission. The state commissions, however, do not in general attempt to ascertain the cost of local exchange services as distinct from intrastate toll services, nor the cost of operations of individual exchanges, the prevailing practice being to treat all intrastate operations of each Associated Company as a unit for rate-making purposes. In other words, intrastate rates, both exchange and toll, are fixed generally on a state-wide basis.[3]

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[1] Up to March 15, 1949 Bell System companies had requested rate increases calculated to yield $483,494,000 in additional revenue and, of this total, increases in the sum of $200,398,828 were granted, while applications amounting to $246,590,000 were pending at that date. National Association of Railroad and Utilities Commissioners (Washington, D.C.) Bulletin No. 43, March 16, 1949.

[2] This is the parent company of the System and controls all of the Associated Companies. A significant volume of intrastate services is furnished by independents, so-called because they are outside the system. Their operations do not in any way affect the analysis.

[3] "Where the states do not have jurisdiction, cities, in some instances, are vested with jurisdiction to fix telephone rates. A number of such situations exist in Texas, as for example, in El Paso. When rate controversies result, the only earnings which can be considered in a confiscation case are the earnings applicable to these cities, and therefore,

(*Footnote 3 continued on page 250*)

This basis of rate making and the practices associated with it raise numerous problems, as does the method used in separating interstate property and expenses. It is here proposed to examine and analyze these problems from the viewpoint of economic principle.

II. State-Wide Rates

As a corollary of the state-wide thesis, the aggregate costs of furnishing intrastate telephone services and the resulting revenue requirements are considered for the state as a whole. Consequently local exchange rates are not related to the costs of individual exchanges, nor intrastate toll rates to the cost of the toll service.

Associated with the state-wide method is the practice pursued by the Bell System of grouping exchanges for purposes of rate fixing. Generally, exchanges are grouped or classified according to size, and the level of rates increases from the smallest to the largest exchanges. The example below illustrates exchange grouping on a state-wide basis:[4] The Bell System and the state commissions justify this rate structure on the grounds that the value of the service increases as the number of stations increase in a local service area and that cost-of-service also rises in this circumstance.[5] It is obviously true that as the number of interconnected subscribers and stations is enlarged, the telephone service becomes more valuable because each subscriber can reach more people, and more people can reach each subscriber. This is important in another connection, as shown below, but from an economic viewpoint cost must be the controlling factor in fixing rates, if cost can be determined.

Discussion of cost behavior in the telephone industry has been generally marked by confusion for two reasons. First, there has been almost a universal tendency to ignore the logical requirements of the theoretical cost categories as accepted in economic analysis,[6] and second, there has been a dearth of empirical evidence of cost behavior in the industry. To avoid confusion, three situations must be rigidly distinguished:

the rates must be geared to the earnings of the areas involved. Other states where some local rate-fixing jurisdictions are involved, include Colorado and Delaware." The California Public Utilities Commission does not accept the state-wide thesis, and in Minnesota there is explicit statutory provision that "the requirement as to reasonableness of rates shall apply to each exchange unit as well as to telephone plants as a whole." *Report of the Special Committee Cooperating With The Federal Communications Commissions In Studies Of Telephone Regulatory Problems* (p. 16 and Appendix C), National Association of Railroad and Utilities Commissioners (published by N.A.R.U.C., Washington, D. C.)

[4] Before the Public Utilities Commission of the State of California, In the Matter of the Application of the Pacific Telephone and Telegraph Company, Application No. 28211, Decision No. 41416, April 6, 1948, at p. 55. The above exchange grouping and rate structure were in existence as of January 1, 1948, in California outside of the San Francisco-East Bay, Los Angeles and San Diego extended areas.

[5] *Report of Special Committee*, etc., *op. cit.*, p. 16.

[6] Jacob Viner, *Zeitschrift fur Nationalokonomie*, September 1931, p. 25 et seq.

Rate Group	Company Stations as of 12-31-46	Residence Flat Rate			Business Flat Rate	
		1-Party	2-Party	4-Party	1-Party	2-Party
1	0–150	$ 3.00	$ 2.75	$ 2.25	$ 4.25	$ 3.75
2	151–500	3.25	2.75	2.25	4.75	4.00
3	501–4000	3.50	3.00	2.50	5.25	4.25
4	4001–8000	3.50	3.00	2.50	5.75	4.75
5	8001–12000	3.50	3.00	2.50	6.25	5.25
6	12001–50000	3.75	3.00	2.50	6.75	5.75
7	50001–100000	3.75	3.00	2.50	7.75	6.50

(1) where increased utilization of existing plant and equipment in an exchange area results from an increasing number of telephone calls, but the number of stations remain constant; (2) where plant and equipment (that is, the scale of operations) in such an area are enlarged because of increasing telephone calls, the number of stations still remaining constant, and (3) where stations are added to an exchange.

The first situation fulfills the requirements of the "short run" period of economic theory. It can be easily disposed of. Since, in the short run, fixed costs which are substantial in the telephone industry are spread over an increasing volume of calls, the average cost per call decreases, at least up to a certain point.[7] There is nothing unique in this about the telephone industry, as any firm with substantial fixed costs experiences decreasing cost in this manner.

The second situation conforms to the "long run" of economic theory. It cannot be of great practical significance because the occasions when exchange facilities are expanded because of increasing telephone calls by existing subscribers must be rare indeed. But it cannot be ignored, as it is necessary to differentiate this situation, the true long run, from the case where the subscribers and stations increase in number, which has been considered, mistakenly, as the long run both by commissions, the industry and others. Analysis of cost behavior in the true long run can also be summarily disposed of. If we assume that plant and equipment are enlarged as a result of an increased number of calls and not as a result of an increased number of stations, there is no reason to doubt that the cost per unit of service decreases. It is fairly obvious that in these circumstances there must be economies made possible by the enlarged scale of enterprise while no diseconomies are apparent. There must, however, be a limit beyond which diseconomies outweigh economies of size.

Where an exchange experiences an increase in the number of telephone subscribers and stations, cost behavior is of greatest significance from a practical viewpoint because it is the only case in which cost behavior has been introduced as a basis for rate making in the telephone industry; and it is the only case ever discussed by regulatory authorities. From a theoretical viewpoint it is essential to note in this connection in the interest of clarity that when subscribers and stations are added to an exchange, there is a departure from the conditions postulated by economic theory both for the long-run and short-run time periods. The reason has been suggested above, that is, the service changes: it becomes more valuable. Theoretical analysis of cost behavior in time periods is based always on the assumption that it is the same product or service that is being produced in the different periods; otherwise such analysis would be meaningless. An increase in the number of stations in a local exchange area, therefore, does not fit any of the theoretical cost categories.

What about cost behavior in this situation? It has been seen that the industry has claimed that cost increases as the exchange is enlarged.[8] On a priori grounds there is good reason to accept this. As stations are added to an exchange the task of interconnecting subscribers becomes more difficult. Switchboard facilities and operations grow progressively more intricate and costly. As the telephone system expands it covers a larger territory, and construction costs rise; poles and lines must be lengthened and more cables and conduits

[7] Where marginal cost equals average cost.

[8] *Report of the Special Committee*, etc., *op. cit.*, p. 69.

have to be installed. Depreciation and maintenance expenses per station also rise. The increase in the amount and in the complexity of facilities necessitates costlier equipment and more highly skilled labor and causes greater expenditures for repairs.[9] While there are some economies resulting from larger scale, the contention is that there is an increase in average cost per unit of service.

Empirical evidence of cost behavior in exchange areas is scarce. This is largely due to the acceptance of the state-wide basis for rate making. Nevertheless, a few cost studies have become recently available. Perhaps the most comprehensive and enlightening is that made by the Public Utilities Commission of the State of California in a recent case.[10] The tabulation below summarizes the findings of the Commission for 47 dial exchanges:

It is apparent from the above that increasing cost is not inexorably associated with increasing size of exchange. Cost per telephone in very small exchanges appears to be high as compared with average cost in exchanges of larger size. Certain minimum amounts of plant and manpower are required for the operation of any exchange. When these are utilized in serving only a few telephones, the cost per telephone tends to be relatively high. Cost per telephone in larger exchanges is substantially greater than in the medium-sized exchanges. This supports in some measure the position taken by the industry on a priori grounds, but it is obvious that, in general, cost and value of the service differ. A much flatter gradient in the rates results from greater emphasis on cost as compared to value, and if cost were the single consideration the smaller exchanges, from the limited data available, would have the highest rates.

The studies have been too few, however, to afford conclusive evidence of cost behavior in the industry generally. Furthermore, the ascertainment of the cost

[9] Herring and Gross, *Telecommunications* (New York: McGraw-Hill, 1936), p. 125.

[10] In the matter of the Application of the Pacific Telephone and Telegraph Company, Application No. 28211, Decision No. 41416, April 6, 1948, *op. cit.*, p. 55. The cost and revenue figures are averages for each group and there is a variation as between exchanges in each group. The figures are for an annual test period covering the results of operations from July 1, 1946 to March 31, 1947, with the fourth quarter included at the same amount as the third quarter, in lieu of the actual results which were abnormal owing to strike conditions. The California Commission also made a study of 251 Manual Exchanges and 44 exchanges in process of conversion The grouping of exchanges was different from that above but cost per station was found to decline as the size of the exchange increased up to a certain point and then rose. It rose earlier for the dial exchanges than for the manual. Of course, the cost per station of the latter was substantially higher than for the dial for all exchanges. See also. Re Northwestern Bell Telephone Company 72 P U R (NS) 86 (1947). Exchange cost studies have been made by the Wisconsin Public Service Commission also. *Report of the Special Committee*, etc., *op. cit.*, p. 69.

Rate Group	Size of Exchange No. of Company Stations—12-31-46	No. of Dial Exchanges Studied	Cost per Station per Mo. at Uniform Return	Revenue per Co. Station per Month
1	0–150	7	$ 4.33	$ 3.40
2	151–500	11	4.10	3.81
3	501–4000	19	3.31	3.83
4	4001–8000	3	3.46	3.86
5	8001–12000	2	4.10	4.10
6	12001–50000	4	3.95	4.34
7	50001–100000	1	3.88	4.38
All Exchanges		47	3.85	4.24

of the local exchange service requires the distribution of the overhead expenses of each Associated Company among the numerous exchanges it operates. It also involves the separation of toll services both intra and inter-state. But despite these limitations, the studies indicate strongly that the assertion, long unchallenged, that cost varies with the value of the service, should not be accepted uncritically as a basis of rate making.

This conclusion is buttressed by the fact that factors other than size of exchange influence cost in exchange areas. Variations in cost also are clearly due to location, topography, density, and other environmental features of the exchange. In addition, customers' habits in using the service and type and age of plant must be considered.

From an economic viewpoint exchange rates should be related to exchange costs. The state-wide method has been defended on the basis of both cost and value of the service, the assumption being that cost and value are correlative. Sufficient evidence of cost behavior in the telephone industry is now available to cast serious doubt upon this assumption. Even if value of the service is desirable as a factor in rate making, rates should not be less than the directly assignable cost of exchange operations. There is no reason why the directly assignable cost of operating individual exchanges should not be determined, and used as a minimum level for rates. Total exchange costs can also be determined either by allocating the overhead of each Associated Company among its exchanges or, preferably, by distributing the overhead on the basis of value of service, and thus preserving some flexibility in rate making.

There is a difference, however, between the cost of operating an exchange and the cost of the local exchange service. This is due to the fact that each exchange also furnishes the intrastate toll service and collaborates in the interstate toll service. It is therefore necessary to separate the cost of these toll services to determine the cost of the local exchange service.

III. Separation

As a result of the state-wide basis of rate making, state commissions separate interstate operations but not intrastate toll. In our view this practice is unsound because (1) both toll services are essentially alike, and both should be differentiated from the local exchange service; (2) separation of interstate services has resulted in the allocation of a disproportionate share of costs to intrastate services and in discrimination against the intrastate toll service in respect of rates.

Interstate and intrastate toll are essentially one service. A toll call is precisely the same service whether made between exchanges in one state or in two states. We have here complete homogeneity. Furthermore, demand factors are substantially the same. The demand for both toll services is highly elastic because of such competing services as telegraph, ordinary and air mail and, in some measure, radio communication. Elasticity increases with distance, but an intrastate call may be, and often is, as distant as an interstate call. There is no distinction in this respect between an intrastate call and an interstate call as such. On the other hand, demand for the local exchange service is relatively inelastic because of the absence of competing media. In addition, the market for the exchange service is different from that for the toll services. The exchange service is further distinguishable on the basis of distance. Even if it be conceded that it is difficult to establish that the toll services and the exchange services are physically hetero-

geneous, enough has been shown to prove that the toll services should be treated separately from the local exchange service for rate making purposes.[11]

The situation is one of joint supply.[12] The line haul phase of an interstate call is performed generally over the wires of the Long Lines Department of the American Company. But all calls, toll and exchange, originate and terminate on subscribers' station equipment, which is always the property of an Associated Company. Other Associated facilities are also used in furnishing the services.[13] Another factor making for jointness is that an expansion in these facilities makes possible an increase in both toll and exchange services.

Jointness in these circumstances presents no difficulties in the short run, at least from a theoretical viewpoint, for the proportions of the services can be varied almost without limit. It is, therefore, possible to ascertain the marginal cost of each service, and its output will be carried to the point where its marginal cost equals its marginal revenue.[14] Regulatory authorities, however, are not concerned with price in the short run; they are required under the law to establish rates that yield revenues covering the total cost of producing the services, including a return on investment. Their objective is the determination, in theoretical terminology, of long run average cost. Since it is impossible to assign directly any specific part of plant and equipment (notably subscribers' station apparatus) used in rendering both the toll and the exchange service, to either one, it follows that the cost of such plant and equipment can be attributed to each service only on the basis of demand or of arbitrary (from an economic viewpoint) allocation. The general practice is to allocate but, as we have seen, the allocation is between interstate and intrastate operations.

The Uniform System of Accounts prescribed for telephone companies by the Federal Communications Commission and the state commissions does not require the allocation of fixed capital investment and operating expenses between interstate and intrastate services. The books of the Bell System companies, therefore, do not reflect such a segregation, and data showing capital and expenses attributable to each class of service are developed by special studies, usually in connection with rate cases.[15] Numerous separation studies have been made by companies and commissions and a variety of methods employed, but the two separation techniques most frequently used are the so-called "board-to-board" basis and the "station-to-station" basis.[16]

Under the board-to-board method interstate toll rates cover the service between toll switchboards in exchange

[11] We are in agreement with Professor J. M. Clark that it is impossible to determine on logical grounds and in abstract terms when output is homogeneous and when it is heterogeneous. *The Economics of Overhead Cost* (University of Chicago Press) 1923, p. 59. The literature is voluminous on the issue. See Clark (*ibid.*) and, *Cost Behavior and Price Policy* (New York: National Bureau of Economic Research) 1943, pp. 174, 175. We support our contention for separation on the basis of the facts.

[12] So far as jointness is concerned all the elements in the situation point to it. In addition it is cheaper to produce the toll and local services together than separately. For example, it would be wasteful indeed to have two telephone stations on the premises of each subscriber, one for total and one for local exchange. Clark, *op. cit.*, pp. 59 and 98.

[13] See below.

[14] Cost Behavior and Price Policy, *op. cit.*, p. 177.

[15] The history of separation of plant and expenses between state and interstate for the purpose of rate fixing is generally regarded as beginning with the Minnesota Rate Cases, 230 U.S. 352 (1913). This case involved a railroad carrier doing interstate and intrastate business. The decision established the general rule that, in rate fixing, plant investment and the expense applicable in common to the several services should be apportioned to each service on the basis of the relative use made of facilities and personnel for the several services. *Report on the Separation of Telephone Property Revenues and Expenses*, (p. 6), prepared by Members of the Joint Subcommittee of State Commissions and Federal Communications Commission, N. Y., April 28, 1947.

[16] *Report of the F.C.C. on the Investigation of the Telephone Industry in the U. S.*, Public Resolution No. 8, 74th Congress 3(199) p. 370.

areas in different states, and the exchange rates include the costs incurred in establishing connections between telephone stations and the toll switchboards, whereas station-to-station rates cover the service between stations in the different exchange areas. In other words, the board-to-board method does not allocate to the toll service any part of the cost incurred in establishing connections between stations and toll service boards while the station-to-station method does.

At present, the station-to-station method is generally used[17] where rates are in controversy, but in some states where the issue has not been raised toll rates are on a board-to-board basis. The industry and the regulatory authorities, both federal and state, have agreed upon the application of the station-to-station method for the future, and it may be concluded that the issue is no longer of any consequence. The NARUC-FCC[18] Special Cooperative Committee on Telephone Regulatory Problems, after long study and collaboration with representatives of both the Bell System and the independents, published in October 1947 a Separations Manual which provides for the separation of telephone property and expenses on the station-to-station basis. While the Manual is not legally binding on either the commissions or the industry, it has been followed in respect of station-to-station separation in virtually all of the recent rate proceedings involving Bell System companies.

A more troublesome problem has been to find under the station-to-station method a satisfactory basis for separating property used in common for intra- and interstate services and also for separating expenses incurred jointly for both. The Manual provides that the basis of separation is to be the actual use of telephone plant in each of these services, and this basis has been generally adopted in the recent rate cases. The manual states that the actual use method gives consideration to "relative occupancy and relative time measurements." Relative occupancy refers to property that can be measured in terms of spatial units, such as square feet. Property of this sort consists of operating room and central office equipment, operators' quarters space, office space, garages, storerooms, warehouses and pole yards. "Time measurements" refers to the minutes of actual use made of plant in service; for example, the minutes of use of subscribers' station equipment.[19]

Any method of allocating joint cost is inherently arbitrary from an economic point of view and must necessarily cause uneasiness among those who propose it. The Special Cooperative Committee responsible for the Manual constitutes no exception and, before recommending the use basis, studied exhaustively numerous other bases for allocation.[20] The principal objection to the use method (other than objections applicable to any allocation of joint costs) is that it fails to take account of the stand-by service for interstate calls afforded by subscribers' station equipment and therefore tends to overstate the amount of property and expenses allocable to intrastate service. But the Committee found no other method that appeared less vulnerable to criticism.

The only valid test possible of any method of apportioning joint costs is the pragmatic one: What results does it produce? In the recent rate cases it seems

[17] An exception is In the Matter of: Southern Bell Telephone and Telegraph Company's Notice of Increased Rates For Local Exchange Service and Intrastate Message Toll Telephone Service in The State of Kentucky, Before the Public Service Commission of Kentucky, Commission Report, November 9, 1948, p. 21 et seq.

[18] National Association of Railroad and Utilities Commissioners, Federal Communications Commission.

[19] See Manual, p. 14.

[20] See *Report On the Separation of Telephone Plant*, etc., *op. cit.*

that the use basis results in the allocation of about 92% of the property and about 88% of the expenses (before taxes) to intrastate operations.[21] In general, the Bell companies have demonstrated that they are entitled to an increase in intrastate rates in some amount. They have shown that their costs of operation have risen substantially in the postwar period, although this does not signify conclusively that rate increases are necessary. Since, however, *all* of their costs have gone up, it seems that interstate rates as well as intrastate rates should be increased. Yet no application has been made by any Bell Company, including the Long Lines Department, for higher interstate toll rates. On the contrary, since the war the Federal Communications Commission has been considering the initiation of proceedings with a view of reducing such rates.[22] Presumably the Federal Commission in its calculation of interstate earnings is using the Manual for separation purposes, for the Commission has been a leading advocate of its adoption. The inescapable inference is either that the interstate rates have been exorbitantly excessive or that the Separations Manual results in the allocation of a disproportionate share of property and expenses to intrastate operations. The Federal Communications Commission has reduced interstate rates on several occasions since its inception in 1934 and therefore it is difficult to accept the view that these rates are now so high that reductions are in order at a time when increases in both exchange and intrastate toll rates are being rather freely granted by state commissions.

Another difficulty results not so much from the application of the use method as such, as from failure to employ it in separating intrastate toll operations. We have seen that interstate toll and intrastate toll constitute essentially one service. There can be no reason either on the basis of cost or value why their rates should not be the same for calls of equal distance. It follows that intrastate toll operations should be separated in the same manner as interstate operations. The Separations Manual states that it is designed for both purposes, yet in none of the recent rate proceedings has the Manual been used to separate intrastate services.[23]

The result has been to aggravate an unfortunate situation. Few states maintain intrastate toll rates at parity with interstate toll rates.[24] The former were very generally higher before they were increased in recent proceedings, and now the disparity is even greater. And yet if any disparity is justified on a cost basis, intrastate rates should be lower than interstate rates because intrastate calls are usually handled exclusively by a single Associated Company, and the switching operations required to consummate such calls are less complicated and presumably less costly than where connections are made with the Long Lines Department as in the case of

[21] This is based upon the finding of the Pennsylvania Public Utility Commission in Pa., *P.U.C.* et al v. *Bell Telephone Co. of Pa.* (Complaint Docket 14499) p. 56.

[22] *Report On The Separation Of Telephone Property, Revenues and Expenses* (supra), p. 10. Certain reductions were made in interstate rates on February 1, 1946. Since then intrastate toll and exchange rates have been revised upward in numerous instances. *Report Of The Special Committee Cooperating With The Federal Communications Commission In Studies Of Telephone Regulatory Problems* (1948), p. 20.

[23] The Manual states that separation of intrastate services is not compulsory, but the use of the Manual is not compulsory for any purpose. In California, In the Matter of the Application of the Pacific Telephone and Telegraph Company, Decision No. 41416 (April 6, 1948) of The California Public Utilities Commission, *op. cit.*, p. 60, state toll earnings are compared with interstate toll earnings. The Commission said that the differential between the rates for the two services should be reduced, but there is no discussion of The Separations Manual.

[24] One state (Michigan) has maintained parity with the Interstate schedules, and Pennsylvania and Delaware follow the interstate schedule except for 0-6 miles where such schedules are slightly lower. *Report of the Special Committee* etc. (1948), p. 20.

interstate calls.[25] If the Federal Communications Commission should in these circumstances reduce interstate rates, the result would clearly increase discimination against users of the intrastate toll service.[26]

The application of the Manual to the separation of intrastate toll services will put rates for these services on the same basis as interstate rates and make possible the removal of the discrimination now prevailing. This could be done either by reducing intrastate rates to the level of interstate rates or by increasing the latter to the level of the former, or by fixing the rates for both services at some intermediate level. In view of the rise in the cost of producing *all* telephone services in the present postwar period, there is good reason to suspect that an investigation by the Federal Communications Commission, now overdue, of interstate operations would support some increase of interstate rates, although not to the level of present intrastate toll rates. It is reasonable to assume that the recent increases in the latter rates compensate the Bell System for any deficiency in revenues resulting from the fact that interstate rates have not been raised in the present inflationary period. Otherwise the Bell System would have petitioned the Federal Commission for an increase in such rates. An increase in interstate rates, therefore, would permit some reduction in intrastate toll rates, and the toll rate structures would then be brought into harmony at an intermediate level.

[25] See *Bell Telephone Co. of Pa.* v. *Pa. P.U.C.* 135, Pa. Superior Ct. 218 (1938).

[26] The NARUC-FCC Telephone Committee is now studying the growing disparity between intrastate and interstate toll rates. NARUC *Bulletin* No. 150—1949, September 27. 1949.

Conclusions

In regulating telephone rates, state commissions separate interstate toll from intrastate toll and local exchange operations. They establish rates for both intrastate services on a state-wide basis, taking into consideration the aggregate costs and revenue requirements of each Associated Company. Local exchange rates are related to size of exchange on the assumption that value and cost-of-service vary with size. Recent studies suggest, however, that exchange costs are affected by factors other than size and that cost and value of service are not correlative.

According to sound economic principle rates should be predicated on cost insofar as cost can be determined. The three basic telephone services are produced under conditions of joint supply; interstate and intrastate calls are essentially one service and must be differentiated from the local exchange service. It follows that intrastate toll operations should be separated in the same manner as interstate operations. The cost of the local exchange service can then be ascertained on a state-wide basis, but adherence to the cost principle in rate making requires that exchange rates be based on the cost of each exchange. No difficulty arises in ascertaining costs of Associated Companies directly assignable to individual exchanges. Overhead costs can either be allocated to exchanges or distributed on the basis of value of the service. The latter policy is advisable to preserve flexibility in telephone rate making and a measure of continuity with existing practices.

A New Agricultural Ladder†

By MARSHALL HARRIS*

MORE far-reaching changes have taken place in American agriculture during the last two decades than in any previous half century of our national existence. The more obvious changes have been in the technology of agriculture—the physical science aspect—rather than in the institutional framework within which the farmer must carry on his operations—the social science aspect. Yet, in recent years institutional arrangements have changed to a marked degree and these changes are exerting a profound impact upon rural America.

Some of the new arrangements such as agricultural price supports, public assistance in conservation of privately-held land, cooperative rural electrification, publicly-supported farm credit organizations, and profit-sharing farm labor agreements represent sharp breaks with the past, and are discussed frequently. Others have developed more gradually, and are hardly noticed. Among them is a new agricultural ladder which many young farmers are using to reach the farm home ownership ideal. The new operating agreement-transfer arrangement ladder is in contrast with the old laborer-tenant-owner ladder.

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† *Editorial Note:* Ever since W. J. Spillman gave currency to the term "the agricultural ladder" in 1916 the concept has had a prominent place in discussions of the process by which farm ownership is acquired in the United States. It also has influenced the nature and methods of research into questions of rural land ownership, farm tenancy, inheritance, and use. But within the past decade there has been an increasing recognition that the agricultural ladder, as a guide to research, is a tool in need of reshaping and resharpening. Concrete data in support of this belief have been made available recently in the publication of the findings of the survey of *Farm Land Ownership in the United States* (Buis T. Inman and W. H. Fippin) a nation-wide study made in 1946 by the Bureau of Agricultural Economics of the United States Department of Agriculture and published in December 1949 as Misc. Publication No. 699; and there have been recent works of individual research into postwar changes in farm tenure and population. This article, by Marshall Harris, and the one which immediately follows it, by Erven J. Long, are critical evaluations of the concept of the agricultural ladder. In them suggestions are made for its modification if it is to retain validity as a model in land tenure research and policy formulation.

I

Ownership in the hands of the operator was one of the most Jeffersonian of the fundamental ideals that undergirded the struggling young democracy. Jefferson envisaged a countryside of family farm owners when he pleaded before the Virginia assembly for the elimination of primogeniture and entails which had sustained a landed aristocracy in his native Virginia from early Colonial times. He re-asserted his uncompromising defense of this ideal when he changed the "life, liberty, and pursuit of property" clause in the early drafts of the Constitution to "life, liberty, and pursuit of happiness," which is now a part of our basic social compact. He was successful in keeping this ideal in the forefront, even while he was absent in Europe, for the seed that he planted flowered into the Northwest Ordinance.

Subsequently, the early federal land sales policy was liberalized with the avowed objective of helping farm operators to attain ownership of their land. The integrity of this policy was sustained by the pre-emption principle which was given legal status in 1941, and the monumental free land policy that found expression in the Homestead Act during Lincoln's administration.

The processes by which many farmers achieved ownership during the first

century of our national life depended heavily upon free land. Starting up the agricultural ladder on the frontier consisted chiefly of being given title to a tract of unimproved land, bringing it under cultivation and constructing the necessary buildings, fences, and other farm improvements. Progress up the ladder of that day was represented by additional buildings, a better house, improved land, enlarged herds and flocks, and perhaps the acquisition of another piece of land.

Agricultural and political leaders thought that the family farm ideal was being attained by the farmers of this country until the 1880 Census showed that one farmer in four was a tenant. Over the next quarter century the drift toward tenancy increased in intensity and it commanded the attention of research workers during the decade following 1910. It was in this decade that research in agricultural economics had its first great impetus.

To counteract the trend toward tenancy, researchers set themselves to the task of discovering the processes by which farmers attained ownership of farm homes. The hypothesis was that if the secret of success could be discovered from those who had made the grade, others who aspired to ownership could be given the magic formula. Thus, a larger percentage of farmers would attain the objective of the established national policy.

These researches led to the development of the agricultural ladder idea. Analysis showed that many owners started as unpaid family laborers on their home farms and gained skill and experience in farming. They then became hired workers, either at home or in the community, and during this time they accumulated sufficient capital to climb to the third step on the ladder. After several years as tenant farmers they had saved enough to buy a family farm, by paying down a substantial proportion of the total cost and giving a mortgage for the remainder. The next step on the ladder was that of full and unencumbered ownership, frequently followed by retirement in town as a landlord. The process by which a young man could attain farm home ownership was presented as successive rungs up the so-called agricultural ladder from unpaid family laborer, to hired man, to tenant, to encumbered owner, to full ownership.

Much research and many action programs have been guided by the basic philosophy inherent in the agricultural ladder idea. It has been an effective model in portraying one of the processes by which farm home ownership is attained. That many farm owners did not ascend the ladder step by step in orderly sequence, and that the amount of time spent on the several rungs of the ladder varied, has not detracted from its utility as a model.

The process was thoroughly American and reasonably descriptive of the experience of many farm operators. The young married couple with no financial resources, but with good health, ambition, thrift, and industry, could start from scratch and climb to the top rung of the ladder. Individual initiative and economic ruggedness were depended upon to guide young farmers on their way to complete ownership. Little attention was paid to human exploitation, and little thought was given to deterioration of land resources. Erosion of soils and humans progressed rapidly and unnoticed. The major objective of many a farmer was to attain unencumbered ownership of a family farm, or possibly of two farms, so he could retire in town and enjoy the good things of life in his declining years.

II

About the time of World War I, America began to grow up—to reach maturity. Practically all free land had been homesteaded. Employment opportunities in industry increased rapidly. For the most part the traditional hired man disappeared from the rural scene. More farmers were found on the tenancy rung of the ladder and they remained there for longer periods of time. Difficulty was experienced by many in paying off farm mortgages, in spite of the publicly-sponsored farm credit program introduced in 1916. For many people the agricultural ladder ceased to operate. For some it became a treadmill and they remained on the same rung year after year. Also, it became a two-way ladder that carried, through foreclosure or otherwise, an increasing number of farmers from ownership down to tenancy and even down to wage laborer.

Along with the weakening of the old agricultural ladder, new ideas were developing as to the standard of living a young couple should maintain. In many quarters exploitation of the wife and children in the attainment of ownership was no longer looked upon with favor. The demand for better homes, schools, and churches was growing in every community. An expanding new technology, an ever-increasing size of farms, widespread expansion of livestock enterprises, multiplication of investment in machinery and equipment, and other significant changes increased greatly the amount of capital required to get started in farming in any acceptable way. The rapid advance in medical science and expanded health facilities greatly increased the proportion of farm people in the older age groups. In addition, many farmers no longer aspired to retire in town. City conveniences such as electricity, running water, bathrooms, radios, and automobiles were brought to many farms. Many of the old folks remained among their own on the soil they loved. These factors tended to retard progress up the agricultural ladder. On the other hand, heavy fixed charges, violent price fluctuations, and increased weather risks made it more difficult to stay on the full ownership rung once it was attained. When the impact of these factors began to be felt, the theory of the old agricultural ladder lost much of its meaning.

Other influences at work in rural America that helped to change the situation were the new agricultural programs which began to appear about the time of World War I. Of particular importance were those programs that affected farm youth, as for example, the 4-H clubs and agricultural education in high schools. When these programs began to make an imprint upon rural America, the background of the young man who sought a family farm was quite unlike that of his father or grandfather. The 4-H club or Smith-Hughes high school projects gave the modern young man a taste of ownership and control at an early age. Some experience in management and considerable knowledge of financial matters became a part of his background. In addition, he began to accumulate some capital, as well as much technical information on farming. He was no longer satisfied to work as a hired man on a neighbor's farm and to struggle on the tenancy rung of the ladder. When he married his high school sweetheart, who had been trained in home economics in a model kitchen, the accepted idea was that the young couple would start life on a level commensurate with their background, status, and experience.

While all of these factors were working together to weaken the integrity of the old agricultural ladder, a new process in attaining farm ownership was develop-

ing. More fathers began to take their sons into the farm business rather than to put them on their own as hired men. A wide variety of operating agreements was worked out between fathers and sons regarding division of ownership and management and sharing the income of the joint endeavor. Fathers found it quite natural to meet the new situation by expanding and building upon the successful experience of their sons in 4-H club and FFA project work. Recently, the on-farm training program for veterans has increased greatly the number of such farming arrangements. Agreements between father and son have bebecome prevalent in many of the better farming areas of the country.

These operating agreements are laying a foundation for new practices in transferring the farm to the younger generation. Fathers are now confronted with the problem of bridging the gap between the operating agreement and ultimate acquisition of the farm by the operating heir. Society is interested in maintaining the farm as an efficient production unit throughout the transfer process. The earlier equal division of the real estate, whether by the law of descent or by will, and the typical American disposal sale of personal property, are in process of being replaced by intrafamily transfer agreements, under which one of the sons takes over the entire farm as a going concern.

A new philosophy is developing as to the processes of getting started in farming and in making the transition in farm ownership from one generation to another. Many farm owners who have struggled to attain home ownership, have built up the soil on their farms, have improved buildings and fences and have developed fine herds and flocks are no longer content to see their labor go for nothing when they are no longer there. A new sense of values—love of the land, family name, church, school, and community—is leading toward the development of better ways of managing family affairs and of transferring farm property. A new agricultural ladder is being forged in rural America.

III

From the viewpoint of similarity of problems and the nature of the arrangements, the new agricultural ladder may be divided into two major parts—operating agreements and transfer arrangements. The operating agreements phase is made up of three rungs that are labeled project agreements, apprenticeship, and partnership. The transfer phase is composed of two rungs: transfer arrangements and full ownership.

While on the operating rungs the son (or son-in-law) gains experience in farming; gets a taste of ownership, control, and management; is introduced to risks by sharing in profits and losses; and makes progress in the accumulation of working capital. When he has climbed to the transfer rungs he takes over more of the management; acquires a greater degree of ownership in the personal property; and becomes involved in arrangements looking toward his ultimate ownership of the farm.

The unpaid family laborer rung on the agricultural ladder is being replaced by project agreements—those involving 4-H club and FFA projects for example, or, in some cases, a monthly wage allowance to the son from which he buys his clothes, takes his spending money, and adds to his savings. Working relationships at this level may be either formal or informal and may relate to a single animal or piece of land or to several activities. The supervision and teaching processes are divided between the father and the 4-H club leader or the agri-

cultural teacher. The boy is introduced into farming as a part of his education.

The hired man rung on the ladder is being replaced by a more inclusive and formal enterprise agreement under which a son shares in the ownership of some of the operating capital, furnishes his part of labor and management, and shares in income from the enterprise. This is the "testing period" during which the son gains real farm experience, decides whether he would like to farm and accumulates additional capital.

The tenancy rung on the ladder is being replaced by a full-fledged operating contract or father-son partnership under which the son owns part of the working capital, shares in the management of the entire farm, and is responsible along with his father for all aspects of the farm business. Savings accumulated by the son are plowed back into the business. The son gradually acquires much or all of the working capital, assumes a greater part of the management and takes a larger share of the farm income. In the latter stages, the operating agreement may shift from the partnership type to the landlord-tenant type.

The encumbered ownership rung of the ladder is being replaced by the first stages of the transfer process under which the son obtains a specific ownership claim on the farm business. This claim may not result in full ownership until after the father's death, when the inheritance process is completed. The son usually acquires ownership of most or all of the personal property, takes over all or much of the management, and may begin to buy in on the real estate.

The full ownership rung of the ladder is attained when the son takes over the home farm as his own. The five-rung process begins all over again when the new family farm owner takes his own son through 4-H club and FFA projects and enters into an apprenticeship-operating agreement with him.

The rung-by-rung aspects of the old and new agricultural ladders may be summarized categorically (fully realizing the liabilities which this entails) as follows:

Old Ladder	*New Ladder*
1. Unpaid family labor	1. Project agreement
2. Hired man	2. Apprenticeship
3. Tenancy	3. Partnership
4. Encumbered ownership	4. Transfer arrangement
5. Full ownership	5. Full ownership

IV

The impression should not be left that the old labor-tenancy-ownership ladder has been replaced completely by the new operating agreement-transfer arrangement ladder. Far from it. But the replacement process has been started, and it is gaining momentum. As yet, however, the climbers of the new ladder are few, but the growth is steady and sure. Its use will be slowed down if farm income declines drastically and farm labor becomes more plentiful. It will be accelerated by greater mechanization, an increase in size of farm, and a shortage of farm labor. The climbers of the old ladder have been few. A recent nationwide land ownership survey found that less than one owner in six had attained ownership via the labor-tenancy-ownership ladder. It is estimated that the new ladder may be adapted to at least an equal proportion of all farmers. The major limiting factor in the long run is the large number of small farms—too small to support two families.

Nor is any implication intended that the new agricultural ladder has never been used before, for it has. Farm families helped their sons to attain ownership long before the introduction of 4-H clubs and agricultural education

in high schools. And it should be clear that more than two ladders to farm home ownership are to be found in rural America, for many processes are used in attaining ownership of family farms. In some cases, if there is more than one son, the two ladders are combined. The older sons climb the first rungs of the new ladder and shift to the tenancy or encumbered ownership rung of the old ladder to make room for younger sons.

The new agricultural ladder is suggested only as a device in explaining the observed processes. Progress toward the ideal is in fact a gradual process and transition from one stage to another is frequently difficult to observe. In addition, some sons skip one or more of the rungs, progressing directly to the partnership stage or to full ownership. The ladder idea is used merely as a model. It facilitates description and analysis, and the various rungs represent quite distinct stages that portray rather accurately practices prevalent among farm people.

The new process appears to be well adapted to current agricultural developments as they unfold. The emerging ladder, however, presents some new problems for the research worker and the educator. One group of problems, from the viewpoint of the individual, can be posed as follows:

(1) How can a family know that the farm is of sufficient size, or that it can be made large enough to utilize effectively the labor and furnish adequate income for two families? How can the new process be adjusted to meet the needs of a farm that will remain too small for two families?
(2) How can a farm family know whether it is prepared by experience and temperament to enter into these operating and transfer agreements?
(3) How can progress up the new ladder be made more rapid and at the same time more assured and secure?
(4) How can the various rungs of the new ladder be shaped so that those who use this process will find it better adapted to their needs, from the viewpoint of the children who climb the ladder, the parents who support it, and society which is subject to its influence?
(5) How can the new process be adjusted to fit more cases?

From another viewpoint, that of society, the questions that follow appear pertinent:

(1) Will the family help involved in the new ladder tend to weaken and soften the younger generation? (2) Will a selective process develop that will tend to keep the less qualified and more dependent heirs on the home farm? (3) Will excessive parcellation be reduced? What effect will the new ladder have on concentration of ownership? (4) Will the new process reduce the effect of the family cycle upon development, maintenance, and efficient use of the entire farm plant? (5) How is this process of transferring the farm to the next generation related to the prospective social security program for farm people?

These general questions open up a myriad of more detailed questions. In terms of the present land ownership situation, how important are the potentials of the new agricultural ladder? How many farm owner families can it serve? How old are they? How much land do they own? How many farm owners have no children? How many have no sons? How can the new ladder be adapted to the needs of farmers with no children or no sons? Or, on the other hand, to those who have several sons who want to farm?

Going back to the first rung of the ladder, how can the processes followed in the 4-H clubs, the FFA projects and other early father-son working relationships be expanded so they will touch more farm youth more effectively? How can the early apprenticeship experience be rearranged so that it will better prepare rural youth for the third rung of the

new ladder? How can the impelling motive of ownership and the pride of control be harnessed to teach farm youth enterprise and thrift and to develop at an early age a keen sense of the value of saving? How can participation in problems of management, making of decisions, and buying and selling be increased to enrich the experience of the young man? How can the day-to-day work activities be made to develop effectively the technical knowledge and skills of the farm boy as he works with his father?

The questions confronting the father and son at this stage may be little different whether the son eventually desires to remain in farming or to go into some other occupation. The endeavor should be to develop the judgment, knowledge, and skills of the son and to leave to a later decision whether he should remain in farming. The question eventually becomes important, however, as to how the father can help the son in forming an accurate judgment as to whether he should become a farmer or earn a living in some other way. If the son decides to continue farming after he has reached maturity and is ready to work full time, the father-son working relationship takes on added significance.

How can the father and son develop an apprenticeship agreement that will provide the necessary foundation for a partnership when the son has accumulated sufficient capital and managerial proficiency? How can the son be brought into ownership and control of a share or all of the operating equipment and livestock? How can the process be arranged so as to encourage and expedite the accumulation of capital to be used eventually in the acquisition of land? How can the agreement provide for full participation in all managerial decisions? After the son has acquired some capital and learned the business of farming, how can the decision be made most accurately as to whether he should remain on the home farm in partnership with his father or take his capital accumulation and start in on his own as a renter or as an owner?

If a partnership is decided upon, the working relationship between father and son shifts in at least two respects: (1) How the agreement between the two parties can be arranged so that the rights, duties and responsibilities of each are clearly understood, for farming partnerships take on added liabilities, and (2) how the agreement can provide for the accumulation of capital in anticipation of the time when the son will take over the entire farm. In short, how can progress be made toward an agreement under which the son would eventually become owner of the farm? How should the contributions of working capital be divided? How should management responsibilities be allocated? How can the son be encouraged to save by investing surplus income in the farm real estate? How can the father retreat graciously and turn responsibilities over to the son?

When progress up the new agricultural ladder reaches this rung, the family must determine whether an intra-family transfer agreement is acceptable, and under what terms, or whether it would be better to provide for the descent and distribution of the farm by a will or by the laws of the state. This decision involves many matters of importance to the entire family. How can the parents be protected during their declining years? How can they substitute the satisfaction of seeing one of their own established on the home farm for the pleasure that results from holding on to it until death? What of the other children? How can the transfer agreement be arranged to

meet the American ideal of equal treatment of all heirs?

The new ladder is supported and strengthened by strong family ties. Many farm families are becoming closer knit and more concerned with the land on which they were raised. As economic competition increases, parents feel greater responsibility for getting their children established economically. An increasing number of farm owner families aspire to perpetuate the family name in the community and to link it to the home farm.

On the other hand, many fathers appear to be burdened with the desire to hold on to their farms and to maintain complete control over them as long as they live, while their sons naturally want to get established in farming at an early age. The difference here must be composed if the new ladder is to work most effectively.

The fact that father and son are thus bound together by ties of kinship does not eliminate the need for legal safeguards for both parties. The exact nature of the new legal safeguards required is not yet clear. Three possibilities may be indicated: (1) Possibly the early operating agreements between father and son should be safeguarded legally so the courts will not interpret them to be legal partnerships with all of the inherent liabilities. (2) If a legal partnership is decided upon as the son grows into the third stage, the father and son should be informed of their responsibilities to third parties, and the unlimited liability aspect of the agreement should be safeguarded. (3) The agreements under which the son acquires some ownership in the real estate and eventually takes over the farm also should be safeguarded legally so the welfare of the parents and the heirs will be adequately protected. The nature of these safeguards can become clear only after we have learned much more about the new relationship and have experimented with various types of arrangements, demonstrating their utility.

No attempt was made here to raise all of the questions that research must answer, rather it was intended to lay out in general terms a frame of reference to guide future research. A research program tailored to fit the new agricultural ladder must differ from one designed to accommodate the requirements of the old ladder. A whole new set of legal relationships are evident. Under the old system, the working relationships were concerned with employer-employee, landlord-tenant, and mortgagor-mortgagee law. Well-established legal principles outlined the relationship between the participants, and indicated clearly the respective rights and responsibilities of the various parties. Local customs and legal interpretations have developed over many decades and are firmly established so that the manner in which the old system works is rather clearly defined.

On the other hand, the new agricultural ladder apparently is being built upon a rather new allocation of rights and responsibilities. The father and son do not think of each other as employer or employee during the project agreement or apprenticeship training periods. The partnership stage is contrasted sharply with the older landlord-tenant rung; the basic principles approach more nearly the relations of a business partnership rather than those of landlord and tenant. Some operating agreements do not conform to partnership law—some are a combination of several well-established legal relationships, while others do not fit well into any commonly accepted type of relationship.

In addition, intrafamily arrangements under which it is agreed that the son will eventually acquire the home farm

are usually quite dissimilar from the typical commercial mortgagor-mortgagee financial arrangement, although the transfer agreement may provide a contract under which the son is bound to make certain payments to the other heirs. Neither do many of these arrangements fit old inheritance practices and wills.

A characteristic of the new agricultural ladder that must be taken into account by research is family help. Under the old system the family gave some assistance to many young farmers in climbing the ladder. Many sons were given pin money from which they could start to save. Some were paid good wages for their work. Still others rented from their fathers under favorable terms, and many fathers helped their sons with the mortgage. But extensive family help was not prevalent. Although family help is not entirely new, it has a different role and an added emphasis in the new setting. Under the old scheme of things, the agreements were largely market-place transactions. The son was usually paid "what he was worth," whether working on the home farm or for a neighbor. The tenancy deal was generally based on what the traffic would bear, conforming closely to community custom. The mortgage was commonly obtained from a commercial concern, uninfluenced by government-sponsored lending agencies and family kinship.

Under the new process, the basic principle is to give the son a better break than he could obtain in the market place. Frequently, this may be accomplished at little cash expense to the farm family, and in many cases the family may also get a better deal than it would get from a stranger. The father assumes considerable responsibility in getting the son started in acquiring skills, developing know-how and speeding up the process of accumulating capital. The son has the responsibility of doing the hard work, supplying vigor and driving power, and introducing new technology. With the intrusion of these new relationships the question arises as to how best to use them to get all of their advantages, and yet minimize their ill effects.

Thus, as the new agricultural ladder develops, more information will be needed as to contractual relations between fathers and sons which are somewhat similar to typical business partnerships and to inheritance practices which involve the transfer of the farm to the new generation. It seems clear that the development of these new relationships should not be left to chance, with a multiplication of local customs which would result in much diversity, complexity, and confusion. It may be that a new body of law will be needed to stabilize and regulate this new type of property relationship. Perhaps present partnership law will be interpreted by the courts to meet the new requirements, or can be adjusted by the legislature to serve the purpose. Under the new ladder local customs and laws which govern inheritance and wills become more important and need to be studied.

It appears that the research worker has a responsibility of shedding light on these questions to provide for the development of the new agricultural ladder in a way that will serve most effectively the farm people of America, as well as the whole Nation. In performing this function the researcher may well develop a working relationship with a selected group of fathers and sons who will put into practice the findings of his research. The experience of these fathers and sons would be followed to see how they worked out from every angle. The researcher could thus develop a testing laboratory in which he would check the results of his recommendations. For the

results of social science research can be tested only in the field of actual experience and the findings can become established, in last analysis, only if they solve the problems confronting those who follow the recommended practices.

Reprints of articles on "The Agricultural Ladder"

These two articles (the preceding one and that which follows) on the agricultural ladder have evoked such interest on the part of seminar groups and agricultural specialists—while yet in the manuscript stage and in the editor's office —that it seems worth while to call attention here to the fact that reprints may be purchased by writing to the editor, *Land Economics*, 315 Sterling Hall, University of Wisconsin, Madison 6, Wisconsin.

The Agricultural Ladder: Its Adequacy as a Model For Farm Tenure Research

By ERVEN J. LONG*

I

JUST when the concept of an agricultural ladder—"by which a young man starting as a farm laborer becomes successively a tenant, an owner subject to mortgage and, finally, an owner free from mortgage debt"[1]—was formulated must doubtless remain unknown. The term could be expected to suggest itself almost spontaneously to American farm people, accustomed as they are to the various forms of the simile of "climbing the ladder" to success. Perhaps for this very reason, that it could be lifted virtually complete out of rural American folklore, the agricultural ladder concept was early adopted as a simple theoretical model, guiding the investigatorial processes of scores of research workers studying farm tenure.

It was admirably suited for this purpose. It was simple, easily comprehended by researcher and reader alike, the latter adapting it excellently to Extension Service use. It was a model of economic dynamics; its basic categories were those which theoretically systematized investigation of a process rather than a description of simultaneous co-existences. This was obviously indispensable in studying farm tenure. Thirdly, it "fit the facts," i. e., it provided logical (theoretical) categories into which data could be easily ordered and arranged. And lastly, it provided not only a means of analyzing an important economic process but also, implicitly, a yardstick of value by which the working of the process could be judged. For it was accepted almost without question that unencumbered farm ownership, being the tenure objective of the farmer, represents the end-in-view of farm tenure research.

Very early in its history, however, the agricultural ladder model began to be suspected of some defects. W. J. Spillman raised some serious questions in the very article in which he is usually credited with making the concept famous among agricultural economists.[2] He concluded that, as a matter of fact, it might easily become impossible for the farmer to work up the ladder "to farm ownership and acquire economic independence by the time his children are old enough to go to college"—especially if land values should rise. The legislation which he foresaw might become necessary to help boost young farmers up on to each of the successive rungs implicitly indicted the agricultural ladder for its incompetence (or at least inadequacy) in farm tenure research. Its beautiful simplicity would now have to be marred by complicating supplementary propositions to deal with these public activities.

The model was by no means useless, however. Once these public programs (improved public credit, for example) became instituted on a general scale they were available to all actual and prospective ladder-climbers on something like equal terms. Consequently, they could be built into the model as "parameters,"

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[1] *The Encyclopedia of Social Sciences* (New York: Macmillan, 1930), Vol 6, p. 124. Most discussions include a preceding step consisting of a few years' work as unpaid labor on the parents' farm.

[2] W. J. Spillman, "The Agricultural Ladder," *American Economic Review, Supplement*, March 1919, pp. 170-79.

and thus treated the same as the "natural elements" in the tenure problem. In its fundamental role of providing a schema for analyzing the processes and measuring the accomplishments of farmers in quest of their greatest objective, it remained a powerful intellectual tool.[3]

Much later, the agricultural ladder model's prestige, though not attacked directly, was strongly undermined by a system of economic concepts designed to bring into sharp question the adequacy of treating farm ownership as a complete end in itself. By bringing tenure status to test against the more embracing ends of maximum net revenue at the private level, and maximum economic efficiency at the public level, the usefulness of the model in measuring the economic accomplishments of farmers was subjected to severe question. It was hard to know now which end of the ladder was up.[4]

Of course most economists recognize what virtually all farmers know, that economic organization is something more than mere production organization. Tenure status cannot be completely written off or subordinated to the more "exact" criteria of income and efficiency. There was still, therefore, a real role for the agricultural ladder model—although some of its lustre had been lost—for those economists who believed that tenure achievements do represent genuine economic progress. So those of us who share this belief are not too uncomfortable in accepting the proposition, "almost every farm family desires to own the land it operates . . ." as the intellectual warrant for one of the most widely acclaimed research treatises on farm tenure of recent years.[5] But by thus holding to farm tenure status as a measure of economic achievement, we have merely delayed the annihilation of the agricultural ladder as a research model. For in this treatise, Parsons and Waples found that the most important characteristic, with respect to the agricultural ladder, of those farmers who had succeeded in "keeping the farm in the family" was that they had not even attempted to climb the ladder. Using family capital as their pole, they had vaulted directly up to ownership.[6] This head-on attack by analysis of fact proved more disastrous than the flanking movements of theoretical reasoning.

II

When the institution we have come to call "the family farm"—to whose existence farm tenure research of the type being discussed owes its usefulness—is carefully analyzed, we can see why the "agricultural ladder" concept is inadequate as a research model. The unique characteristic of "family farming" is that the units of primary economic and of primary social organization are identical. The farm tenure processes through which any given farm family moves derive out of and draw their significance from the efforts of the farm family to realize its total system of objectives, economic and social. The structure of alternatives and the cumulation of decisions in selecting among these alternatives (which together define the nature of the tenure processes) are made from the reference point of the family's efforts to realize these general objectives. They cannot be analyzed purely in terms of tenure categories alone.

To state it differently, tenure processes on family farms *can* be *recorded* in terms of

[3] See B. H. Hibbard and G. Peterson, *How Wisconsin Farmers Become Owners*, Wis. Exp. Sta. Bul. 402, Aug. 1928, for a good illustration of the use of this model in farm tenure research.

[4] I am referring here, of course, to such articles as Theodore W. Schultz, "Capital Rationing, Uncertainty, and Farm-Tenancy Reform," *The Journal of Political Economy*, June 1940.

[5] Kenneth H. Parsons and Eliot O. Waples, *Keeping the Farm in the Family*, Wis. Res. Bul. 157, Sept. ,1945. Quotation is the opening sentence of the bulletin.

[6] *Ibid.*, p. 5.

purely tenure categories (e.g., the "rungs" on the agricultural ladder) but they can be analyzed—"understood"—only in terms of more embracing theoretical categories. These theoretical categories by which we attempt to analyze tenure decisions and their consequences must incorporate, as strategic variables, at least (1) the physical structure of the farm operating plant that is involved in the decision, and (2) the human capacities and potentialities of the family in question. After a brief illustration of the significance of the first of these variables my concluding comments will be concentrated on the latter.

So that the argument need not be labored, I select an obvious illustration of the first point. For some 40 years Professor Hibbard has been making the observation that few farms are big enough to support more than one family. Parsons and Waples found in their study that "keeping the farm in the family" usually meant that the young men took operations of the farm over at an early age (average of 26 years) under some form of arrangement which provided for the simultaneous support of the two generations from the same farm. On the smaller, or poorer, farms in the Midwest, such an arrangement would simply "not be in the cards"—unless of course all normally recognized standard-of-living values were subordinated to the desire for farm ownership.[7] Whether the small size of farms makes for more or for less tenancy is not the point here; the fact is that the size of farm operations is one of the strategic variables in tenure decisions and must be given its proper place in theoretical models designed to make significant analyses of farm tenure processes. This the agricultural ladder model cannot do. What has been said here with respect to the size of farm can be said with reference to other physical aspects of farming—type of soil, location of markets, quality of buildings, etc.

Specific evidence of the inadequacy of the agricultural ladder model in guiding research on farm tenure is most clearly presented by systematic examination of the dynamics of the labor force on family farms. A study made by the author and K. H. Parsons of 5,000 Wisconsin family farms demonstrated dramatically the profoundly intimate interrelations between, on the one hand, the biological-familial processes which create the labor force of family farms and, on the other, the scale and intensity of farm operations.[8] The implications of these same biological-familial processes for farm tenure are just as direct as for the scale of farm operation.

Each of the 5,000 farm operators included in the study was asked to evaluate his own capacity and the capacities of all other members of his farm labor force for farm work. Out of these answers the following "farm-man-power" curve" was calculated, picturing the growth and decline in the physical abilities of the average Wisconsin farm male.[9]

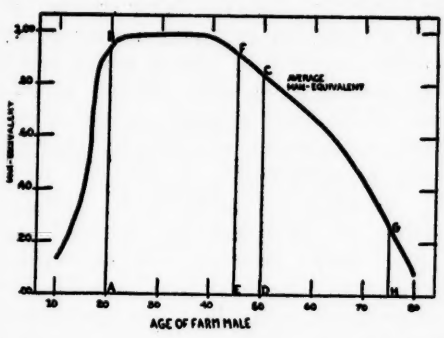
Cursory examination of this chart makes clear the difficulties of the "climb-

[7] In the author's Ph.D. thesis, *The Labor Foundations of Wisconsin Family Farms*, Wisconsin, 1948, we find, for example, that farms on which there were sons 18 years of age or over averaged about 42% larger, in terms of "war units per farm," than did farms where there were no mature sons. Of course this difference is even more marked when these comparisons are made between farms where the fathers are the same age. Where the fathers are in their sixties, for example, farms on which there are sons over 18 are almost 90% larger than those on which there are no grown sons at home. (pp. 232 and 234.)

[8] See Erven J. Long and Kenneth H. Parsons, *How Family Labor Affects Wisconsin Farming*, Wisconsin Research Bulletin No. 167, May 1950.

[9] No attempt will be made here to establish the accuracy of these estimates. The skeptical reader may wish to consult the research bulletin and the Ph.D. thesis mentioned earlier on this point. The relative number of cows per farm, as a measure of size of farm operations, coincides almost exactly with this curve on farms where the operator and his wife constitute the entire labor force.

ing-the-ladder" approach to farm ownership. It will be noted that, starting at about age 20, the man-power curve shows a plateau lasting about 20 years, during



which the average farm man is at a high work capacity. But at about age 40, his capacity for work begins to slip, having fallen appreciably by age 50 and continuing steadily downward. If the young man buys his own farm immediately upon leaving the unpaid family labor category at age (say) of 20, he has 20 years (in the average case) before his labor capacity begins to taper off. Over a period of even as long as 30 years, his average man-equivalent is about 97% that of a fully able-bodied man, as the slight decline over the last 10 years does not greatly affect the 30-year average.

If, on the other hand, he elects to climb the ladder, working as a hired man long enough to acquire half the personal property needed to operate the same farm, and then as a tenant long enough to acquire the remaining half of the personal property and the down payment on the real estate, he will find himself in a much different position with respect to the reasonable expectations of his future labor capacities. Assuming that the returns per man-year-equivalent of labor were equal for the two men, this 45-year-old farmer has a 40% smaller labor resource out of which to pay for his farm over a 30-year period than does the man who begins farming at age 20.[10] Dramatic as this fact may appear, it is really the departure from the opening assumption that is at the core of the problem for at least the typical midwestern farm. One can probably best analyze this problem in terms of the indivisibilities in the factors of agricultural production.

III

The heart of the problem for the typical farm entrepreneur is that of keeping his principal productive factors —land and labor—in proper balance so as to maximize returns to the resources under his control.[11] The institutional character of land use, which makes its supply to the individual farmer very "lumpy" indeed, is very well known to land economics research. In spite of all discussion which might suggest the contrary, the possibilities of substitution of non-land for land capital are rather slight and its processes costly in the length of time relevant for the typical farmer.

It is actually, in a sense, the opposite institutional character of the supply functions of land and of labor which largely sets the problem for the farmer who must keep these two main factors of production in proper adjustment. The total supply of land, at least as simple space, is physically pre-established for all practical purposes. Its availability to the individual farmer is determined firstly by his economic resources, and secondly by the tenure pattern of the farming community in which he lives, which establishes the supply of land available to him at a feasible price. There are there-

[10] This is to say that area EFGH on Figure 1 is only 60% of the area of ABCD.

[11] Labor must usually be counted as a "fixed" cost to the operator, as he himself furnishes most of it; for example, on 88% of the farms in Wisconsin the individual farm family supplies all of the year-round labor.

fore three requisites to an expansion of the farmer's holdings; (1) the community must make the land available within a price range relevant to the farmer as prospective purchaser, (2) the farmer must exercise his choice, and (3) he must put his decision into positive action which, in turn, requires sufficient economic resources.

Labor, the other main factor in farm production, is accumulated by a quite different process. Although the community may to some extent influence the size of the farmer's family, its influence is suggestive rather than coercive. It does not actively establish for the farmer the availability or nonavailability of a large family. Neither is the supply of family labor usually limited by the farmer's financial resources; indeed, the largest of families are often to be found among those farmers with the lowest incomes. And the function of the individual's choice is of a nature fundamentally different from that involved in enlarging his land holdings. Decision and positive action, when made by the farmer in this respect, are usually to control rather than to enlarge the size of the family. Thus the fundamental differences in the supply of these two factors of farm production hinge largely upon the individual's actions. In the absence of positive discretionary action by the farmer, the supply of land is static, while that of labor, during most of his lifetime, is highly dynamic. The labor capacities of the farm family are something of a by-product of the biological and social processes of individual growth and aging, of family increase and dispersion. This fact, even more than the "institutionally imposed rigidities" in the supply of land, is likely to be overlooked or its implications inadequately comprehended by farm economists.[12]

For the one-man farm[13] there is normally a 20- to 25-year period of full, and therefore constant, labor supply. If this period coincides with the period of owner operatorship, during which labor and management skills are put to the task of acquiring complete equity in the farm, a reasonably stable factor balance may be worked out. In real life, with its tremendous variations in circumstance, an approach can be made to proper factor balance only by experimentation. Short-run year-to-year factor adjustments must be made primarily within the narrow ranges of capital and land and capital and labor substitution possibilities—one of the more common vehicles for effecting these substitutions being, of course, shifts in the relative balance between enterprises. *The presumption would be very strong that a profitable balance could much more likely be reached by this trial and error process under conditions where the labor supply (the most important single productive factor) is relatively constant than where it keeps constantly shifting downward from increasing age and the vagaries of accident or illness.*[14] This presumption is strengthened by consideration of the institutionally imposed inflexibility in the supply of land available to the individual farmer.

Nor can this factor adjustment be made easily by the addition of hired labor to offset the decline in the operator's labor supply. Man power is usually available in chunks of one man. The continuous nature of farm production sharply limits the possibilities of part-time use of a man for this purpose. The addition of a full

[12] I shall not here develop the argument as to why this has been the case. For that argument, see my brief article, "Returns to Scale in Family Farming: Is the Case Overstated?" *The Journal of Political Economy*, December 1949.

[13] In Wisconsin only 32% of the farmers have either a hired man or a son over 18 years old working on the farm.

[14] The farmer's problem is made more acute by the fact that the nature of events which define the precise character of his diminishing labor supply function cannot be precalculated, even within reasonable limits.

man would usually mean something like a 75% to 100% increase in the total labor force.[15]

Finally, it is the writer's firm belief that the possibilities of substituting capital (in the form of machines) for labor is, from the viewpoint of the typical farmer caught in such circumstances, much more limited than superficial contemplation tends to indicate. Scores of interviews on the subject with older farmers have convinced me of the fact. The most powerful hypothesis as to the reason is that suggested by Ellickson and Brewster.[16] The farmer is irrevocably a tool user, not a machine tender. Capacities to develop new skills in order effectively to use new tools diminish with age. It is not on the farms worked alone by the older men, but rather where there is "young blood," that we find the newest gadgets of twentieth century agriculture. The farmer on the falling section of the man-power curve, seeking to achieve an optimum balance between the factors of production under his control, is faced with a problem for which there is no simple solution.

Farm tenure research designed to assist farmers to achieve those values expressed in their age-old quest for farm ownership must operate out of a much more embracing system of hypotheses than is provided by the agricultural ladder model. Its theoretical categories must simultaneously embrace the strategic relations which tie the family farm with its biological and familial processes, the physical capacities of the farm plant and the institutions which define the entrepreneur's alternatives, into a going concern. In this way only we can hope to derive a warranted judgment about policies of farm tenure research.

[15] My thesis shows that on the Wisconsin farms where one full-time hired man is employed, he contributes 47% of the total labor on farms where there are no children over 10 years of age. On farms with children over 10 but no sons over 16, he contributes 42%, and on farms with sons over 16 years old, 38% of the total labor.

[16] John C. Ellickson and John M. Brewster, "Technological Advance and the Structure of American Agriculture," Part I (Nov. 1947). See also John M. Brewster, "The Machine Process in Agriculture and in Industry," *Journal of Farm Economics*, February 1950.

II—Supreme Court Views Federal Authorization and Merging of Motor Carriers†

By JOHN J. GEORGE*

HAVING given consideration to commission and court interpretation of grandfather rights of common carriers in the first installment of this article we now turn our attention to those considerations as set forth here.

Grandfather Rights Interpreted for Contract Carriers

Standards for Recognizing Contract Carriers. An applicant whose service prior to June 1, 1945, was "confined to transportation under contracts with a motor vehicle common carrier, of overflow freight solicited by the common carrier, accumulated at its terminal, loaded and unloaded by its employees and moved from consignor to consignee," under waybills of the common carrier and on vehicles owned by the applicant but controlled solely by the common carrier, who also furnished cargo insurance on the goods transported, is not a contract carrier in the sense of Congressional intention. "Where the plain meaning of words used in a statute produces an unreasonable result 'plainly at variance with the policy of the legislation as a whole,' we may follow the purpose of the statute rather than the literal words . . . We conclude that the Commission rightly determined the appellees were not contract carriers within the meaning of the act prior to February 1936."[42]

Thus the Court supported the Interstate Commerce Commission's position that "contract carriers" include only those operators whose contracts are with shippers to whom they are responsible, and excludes those who operate under contracts with other carriers who in turn are responsible to the shippers served. The Court is mindful of the legislative policy in asserting that it was not the intention of Congress to grant multiple grandfather rights on the basis of a single transportation service, declared the common carriers for whom appellees transported were entitled to the grandfather authorization and that to hold otherwise "might result in such a wholesale distribution of permits as would defeat the very purpose of the federal regulation."[43]

Contract or Private Carrier?

In *Schenley Distillers Corporation* v. *United States*[44] a motor carrier subsidiary transporting goods for the parent company for compensation fixed by the latter asked for a permit as contract carrier. At the outset of hearing on the application, applicant moved to dismiss the application on the grounds that the proposed operation did not constitute contract carriage as encompassed by section 203 (a) (15) of the FMCA, but that the operation proposed was private carriage not requiring ICC authorization.[45] Such resort to the "application dismissal procedure" was proper to determine the

† For Part I, see *Land Economics*, May 1950, pp. 183-193. Footnotes in this article are numbered consecutively with those of the first installment.

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[42] On this date appellees had ceased to haul for the common carrier under the contracts, and began hauling under their own name for individual shippers. *United States* v. *N. E. Rosenblum Co.*, 315 US 550; 86 L.Ed. 671 (1942).

[43] *Ibid.* To the same effect as in Rosenblum case runs the decision in *Lubetish* v. *U. S.*, 315 US 57, 86 L.Ed. 677 decided same day, January 14, 1942.

[44] 326 US 432; 90 L.Ed. 181 (1946).

[45] Subsidiary and parent company admitted the operation did not constitute common carriage.

character of the operation. No evidence was offered at the hearing that the carrier would conform to contract carrier requirements.

The Commission held the above operation to be contract carriage, and denied the permit; corporation and subsidiary sought injunction against the decree of denial. The district court found the parent corporation had no sufficient legal interest to sue, and sustained the ICC classification of contract carrier and its denial of permit. On review, the Supreme Court advanced two pertinent points:

(1) Contract carrier status attaches to a motor carrier whose stock is owned by a company whose products are transported by the carrier for compensation paid by the owner of the products. Failure of such carrier to obtain a permit from the ICC disqualifies the carrier from interstate commerce. (2) Corporate interests created for avoiding a "clear legislative purpose" are not to be disregarded where "those in control have deliberately adopted the corporate form to obtain advantages thereof where "no violence to the legislative purpose is done by treating the corporate entity as a separate legal person. One who has created a corporate arrangement, chosen as a means of carrying out his business purposes, does not have the choice of disregarding the corporate entity in order to avoid the obligations the statute lays upon it for the protection of the public."

Valid Restrictions in Grandfather Permit

The statute directs that a contract carrier (or his predecessor in interest) in bona fide operation on July 1, 1935 receive merely for the asking a permit to continue operating "over the route or routes or within the territory for which application is made, and has so operated" since that date. It requires the ICC to specify in such permit "the business of the contract carrier covered thereby, and the scope thereof."

Finding that applicant Noble was operating on the statutory date under contracts with stated customers and was transporting particular articles over irregular routes in a specified area, the Commission embodied these details into the permit issued to Noble. Recipient insisted the limitation restricted the shippers and types of shipper for whom he could haul the specified articles, and argued that under the grandfather clause he should be allowed to transport them for anyone who wished such service in the area covered by the permit. Failing to establish his claim with the district Court, Noble appealed to the Supreme Court, which acknowledged that in an earlier decision the ICC had taken the position, now demanded by Noble, that contracts could be made by contract carrier with whoever wished the authorized transportation in the area specified, but observed that no longer did the Commission grant such terms.

With the more recent and restrictive ICC interpretation of "the business covered and the scope thereof" the Court agreed, holding that not only articles originally transported and area involved are included, but that frequently an accurate definition "can be made only in terms of the types or class of shipper served." Any other interpretation of the grandfather clause would "greatly distort the prior activities of the carrier." To treat a highly specialized carrier for a few select customers as a "carrier of general commodities for all comers, merely because he carried a wide variety of articles would work a significant change in the characteristics" of the contract carrier operations, "a change as fundamental as we thought was effected by a disregard of the nature and scope of the holding out of the common carrier in the *United States* v. *Carolina Freight Carriers Corp.*"[46] "The result in the present case would be a conversion for all

[46] 315 US 475; 86 L.Ed. 941 (1942).

practical purposes of the contract carrier into a common carrier—a step which would tend to nullify a distinction Congress has preserved throughout the Act."

The Court considered correct the standard applied by the ICC in defining the nature and scope of applicant's business, and emphasized that to the Commission has been reserved the "precise delineation of an enterprise which seeks protection of the 'grandfather Clause'."[47]

The limitations here imposed restrict the contract carrier to the same class and type of shipper he was serving on eligibility date as well as to the same articles and the same area of operation; it does not confine him to the same shippers he was serving on that date.

Suspension of Service Because of Bankruptcy of Carrier

In 1942 the Court met the question of grandfather permit rights of a successor in interest to a bankrupt operator whose service had been interrupted for sixty-nine days between the eligibility date and the Commission hearing on the application. Admittedly, the bankruptcy had been greatly induced by failure of the insurance company whose policies the Commission had earlier approved.

The ICC so construed Section 206(a) that it need not go back of the established fact of bankruptcy of the motor carrier to seek ultimate causes of the bankruptcy as a basis for holding that the interruption of service was "within the control of the applicant;" by purchasing the trade names and good will of the bankrupt estate, the successor received no operating rights; "neither corporation was entitled to a permit under the grandfather clause."

Whether one is to be judged in control of his general destiny or of his course in particular matters, or whether he is merely a pawn of circumstances (the Court points out) "has been debated through the ages by theologians, philosophers, and scientists. Whatever doubts they have entertained as to the matter, the practical business of government and the law is obliged to proceed on more or less rough and ready judgments based on the assumptions that mature and rational persons are in control of their own conduct. Certainly, that assumption must be made in reference to a corporation such as the applicant."

Society in setting up and empowering a corporation "can hardly allow that its business affairs are at any time out of control of those whose duty it is to control them. The Bankruptcy Act rests upon and operates" on the assumption "that the bankruptcy is within the bankrupt's control." "Whether or not this assumption squares with philosophical doctrine, or even with reality, is not for our determination. The Commission, and the Courts too, must get on with the application of the Federal statutes without waiting to settle the verity of philosophical assumptions on which they rest."

The Court viewed as valid the Commission holding that legally the interruption of service due to bankruptcy "was not one over which the applicant had no control within the meaning of the Act . . . The complexity of the chain of causation shown in this case makes it an apt illustration of the impracticability of any other rule."[48]

That the sixty-nine day interruption broke the bona fide service was a reasonable conclusion of the ICC, and any substantial interruption of service of one carrier tends "to produce expansion of other facilities to meet the continuing demand of shippers, and thus to cause over-

[47] Unanimously the dismissal of Noble's complaint by district court is affirmed. *Noble* v. *United States*, 319 US 88; 87 L.Ed. 1277 (1943).

[48] *Gregg Cartage & Storage Co.* v. *United States*, 316 US 74, 86 L.Ed. 1283 (1942).

crowding if the suspended service is resumed."[49]

Delay by the Commission in passing on the application for grandfather permit which delay was not arbitrary nor reflective of any deliberate discrimination, in consequence of which, by reason of subsequent cessation of operations, the application was denied, does not entitle the applicant to relief. With 90,000 applications to pass upon, the ICC "could not have been expected to pass on them simultaneously. It is not within our province to remedy inequalities necessarily incident to the administration of the statute."[50]

From the majority position, Justices Douglas, Black, and Byrnes dissented, charging that the Commission, not Congress, created the presumption of bankruptcy being not beyond the control of the operator-applicant; they cited the statutory provision[51] excepting from disqualification of bona fide service "since that date" those "interruptions of service over which the applicant or its predecessor in interest had no control." The dissenters remind us that the Commission had already included in such "interruptions" beyond the applicant's control those due to floods, snow, unsafe and impassable roads, highway construction, and droughts which destroy a carrier's chief source of business; ill health, strikes, and illegal action of governmental authorities. It becomes distortion for the Commission to refuse inclusion to similar misfortunes purely accidental, as for example, the going bad of cargo insurance company whose policies on the carrier-applicant the Commission had approved, this failure thus undermining the financial stability of the applicant and precipitating his bankruptcy. The majority is sharply criticized for permitting the "statutory grants to be whittled away on technical and legalistic grounds which find no expression in the statute." Douglas concluded the dissent by confessing: "It is hard for me to imagine a clearer case where applicant could probably succeed" in proving that default in his operations was beyond his control, and declaring that the applicant should certainly be allowed an opportunity to attempt such a demonstration.[52]

De Novo Authorization

(1) *Criteria for ICC Granting Certificates.* Where a railroad-owned motor carrier subsidiary sought a certificate for service auxiliary and supplemental to railroad transportation of l.c.l. freight under supervision of the railroad and coordinated with the railroad service, the ICC granted certificates for seven highway routes paralleling the railroad lines, the motor service being restricted by the certificate to rail station points, but not to, or to pass through, more than one of the two specified railroad bulk-break points (Ft. Wayne, Indiana, and Mackinaw, Michigan).[53]

There was uncontradicted evidence that motor delivery of the l.c.l. freight to intermediate stations is nearer adequate and efficient and more economical for railroads than by their use of peddler freight cars. Separate motor carriers operating in the same area were not coordinated with the railroad service. Better cooperation could be obtained from common management of railroad and trucks than through contracts with the non-rail motor carriers. The proposed service by the railroad-owned motor carrier would be different in character from existing motor carriage, and was not viewed as prejudicial to nor

[49] *Id.*, 84 and 1290 respectively.
[50] *Ibid.*
[51] Sec. 206 (a) 49 USCA 306.
[52] *Id.*, at 88 and 1292.
[53] *Interstate Commerce Commission* v. *Parker*, 326 US at 65; 89 L.Ed. at 2059.

directly competitive with existing motor carrier service.

It was held further that in determining whether to grant certificates of public convenience and necessity where carriers of different types would compete, the ICC must balance the public interest in the types of carrier, keeping in mind the legislative purpose of so managing national transportation as to safeguard the inherent advantages of each transportation method, and to promote the safety, adequacy, efficiency and economy of service.[54] To balance advantages of motor carriage with efficiency of railroad operation the ICC must weigh the needs of the railroad against the disadvantage to the motor carriers operating in the particular area, and discover the balance of public convenience and necessity in issuing a certificate to the railroad subsidiary.[55]

(2) *Commission Discretion in Handling Applications.* Where application of each of two competing applicants was heard by different field agencies, before which was raised the issue of each already having operated part way on the proposed route specified in the applications, the ICC acted properly in combining the two applications for report, and in granting a certificate of public convenience and necessity to each rather than denying one and certifying the other or denying each, there being no issue raised by the Commission in granting the certificates, and the ICC report being supported by adequate evidence to sustain the Commission decision to certify both. Failure of the Commission to attribute particular parts of the evidence to each definite application constituted no breach of procedural propriety, both applicants and their protestants being present at the hearings conducted at approximately the same time and places, and had full opportunity to offer all evidence "they considered pertinent, and to cross-examine witnesses and otherwise to protect their interests." The contention that the ICC, in failing to thus allocate the evidence in its reports and revealing prejudice in forming its conclusions "amounts in its farthest reach to a legal version of the scriptural injunction against letting one's right hand know what one's left hand is doing."[56]

It is likewise proper for the Commission to go beyond the record of applications to take account of matters brought to its attention through official notice. Seeing that a fair hearing has been afforded, the Supreme Court did not undertake "to make a fetish of sticking squarely within the four corners of the specific record of administrative proceedings or of pinning down such agencies, with reference to fact determination, even more rigidly than the courts in strictly judicial proceedings." The Court held that substantial prejudice must be shown in order to invalidate action of the administrative agency.

Further, the ICC order granting both applications did not lack adequate basis in that it did not rest on express finding "that there was need for two through-line operations which would be in competition with each other . . . the findings expressly stated, concerning each application 'that the present and future public convenience and necessity requires the extended operations'."[57] "There can be no presumption that the Commission disregarded the public or any other interest . . . It should not be required to rewrite its report simply to say, redundantly we think, that both operations as well as each are required by public convenience and necessity."

[54] *Id.*, at 65-6 and 2059-60.
[55] *Ibid.*
[56] *United States* v. *Pierce Auto Freight Lines*, 327 US 515; 90 L.Ed. 821 (1946).
[57] At 531 and 832 respectively.

All doubts whether the applicant could operate successfully the route certified should be resolved in favor of the Commission report, which is supported by a finding that the applicant is fit, willing, and able[58] to perform the service proposed.

Finally, the records of the proceedings have not gone stale though made up in 1940. Three years had intervened and War II had come on prior to the report and order of the Commission made in 1943. No abuse of its discretion exists in the denial by the Commission in 1943 of a petition for rehearing of those competing applications. Administrative bodies have discretion concerning rehearings and courts should interfere only when clearest abuse of that discretion is shown. "It is not true, as the [district] court opinion stated that 'the courts must in a litigated case, be the arbiters of the paramount public interest'." This is rather the business of the commission, made such by the very terms of the statute. The function of the reviewing Court is much more restricted. It is limited to ascertaining whether there is warrant in the law and the facts for what the Commission has done. Unless in some specific respect there has been prejudicial departure from requirements of the law, or abuse of the Commission's discretion, the reviewing court is without authority to intervene. It cannot substitute its own view concerning what should be done, whether with reference to competitive considerations or others, for the Commission's judgment upon matters committed to its determination, if that has support in the record and the applicable law."[59]

In another case the Court has sustained the ICC discretion to rest its conclusion to withhold certificates on "the infinite variety of circumstances which may occur in specific instances,"[60] and in the same opinion held that where no valid reason is shown for failure to bring out the alleged bias of railroad witnesses at the trial, the Commission is under no obligation to reopen the case to hear evidence on the alleged bias.

(3) *Erroneous Exclusion of Evidence of Economic Effect of Certification.* In *American-Trucking Association* v. *United States*[61] non-rail applicants protested to the joint boards and subsequently to the ICC itself the refusal to allow protestants to introduce evidence of the economic effect of certificating the Seaboard railroad in the operation of proposed motor truck service. Despite the protest, the Commission in July 1939 and February 1940 issued to the Seaboard certificates limiting the motor transportation to goods having a prior or subsequent rail haul.[62] Likewise, an attempt was made in early 1941 to introduce similar evidence in the *Kansas City Southern Transport* case.[63]

At rehearing the Commission reopened the applications solely for reconsidering modification of the key-point condition. The Association again sought to introduce evidence as to the economic effect on independent motor carriers of granting the certificates earlier to the Seaboard, and urged a direction to the railroad "to provide statistics as to the traffic it proposed to handle by truck." Without stating reasons the ICC denied the Association petition. The District Court refused to enjoin the certification of the Seaboard.

Disclaiming any insistence that all the

[58] On Commission interpretation of "fit, willing and able" as a requisite for certification of motor common carriers during the period 1935-40 see George and Boldt, "Certification of Interstate Motor Common Carriers by the Interstate Commission," *Journal of Land & Public Utility Economics*, February and May, pp. 82-91, 196-206, 1941.

[59] *Id.*, at 535 and 835.

[60] *Interstate Commerce Commission* v. *Parker*, 326 US 60, 89 L. Ed. 2059.

[61] 326 US 75; 89 L.Ed. 2065.

[62] 17 MCC (F) 413; 21 MCC (F) 773.

[63] 28 MCC (F) 5.

"evidence" proferred by appellant should have been admitted, the Court poignantly advised that joint boards and Commission should have admitted "evidence of the flow of traffic by truck from points covered in one application to points covered in other applications, and evidence to the effect of the motor traffic, developed or prospective, on all Seaboard routes for which applications are pending or have been granted, on the existing over-the-road motor carriers." Likewise "other competent material evidence which protestants may produce as to the economic effects on the non-rail motor carriers should be received."[64]

Observing that applicant railroad should be required to submit statistical evidence reasonably available to it, and that it would have opportunity to submit evidence on its own part, the Court admonished against concluding that this specification as to admissible evidence restricts the joint boards or Commission in receiving other evidence considered "by either of them material to aid in the solution of the issues between the parties."

However, the Court held as improper basis for denial of certification of the Seaboard the fact that it had been permitted through other proceedings to file illegal tariffs, and had been improperly exempted by the Commission from accounting requirements specified in the FMCA. These irregularities "obviously" do not constitute grounds upon which appellants can base an argument against the grant of a certificate of public convenience and necessity."[65]

The Court denied tenability to the railroad's contention that its certification should be sustained because of laches of appellants, the final certificate having been granted November 30, 1942, and contesting action thereon begun only eleven months later. Likewise it points out the absence of proof that equipment meantime was bought in reliance on the certification, and of failure to purchase railroad equipment in reliance on the certificated use of motor trucks. Some routes had not been put into operation. Furthermore, the question of laches had not been passed upon by the district court. Refusal of the district court to enjoin ICC certification of the Seaboard was unanimously reversed, Justices Black, Douglas and Rutledge concurring for reasons they set forth in the Parker case.

Grantee Succession in Motor Carrier Authorization

(A) *Merger and Consolidation.* Section 213 of the FMCA provides for merger, consolidation, and acquisition of control as between motor carriers not operating rail service, between such a carrier and a railroad, express, or water transportation line, or the purchase, lease, or contract to operate any motor carrier property. In receipt of application for merger, the ICC notifies the applicant, the carriers, and the governor of each state in which the equipment involved is operated, of the time and place of hearing on the application. Satisfied that the proposed change will be in the public interest and that statutory provisions are met, the Commission approves the transaction on such terms and with such modifications as it deems reasonable. Finding that the public interest will not be served by the merger between a motor carrier and a non-motor carrier, the ICC will deny approval.

Associated Transport Company, launched to effectuate the merger of eight motor carriers, obtained the approval of the ICC despite opposition of the Secretary of Agriculture and the Antitrust Division of the Department of Justice. It appeared to the ICC that the

[64] 326 US at 85, 89, L.Ed. 2065.
[65] *Id.*, at 87 and 2072.

remaining motor carriers and a railroad would provide sufficient competition to the merged enterprises to protect the public interest. The presence of a Wall Street banking firm on the board of directors of Associated Transport was considered as having no harmful effect.

In a district court for New York, McLean Trucking Company insisted that the ICC order of approval should be set aside on grounds that the Commission (1) applied an improper standard in approving the merger; (2) failed to give due consideration to the prohibition and policies of the antitrust acts; and (3) could not accurately determine that Associated Transport would not be operated in connection with any railroad. District Court denial of the McLean petition came for review in in early 1944.[66] Chief points in the Supreme Court opinion follow:

(1) Within the standards set by the statute requiring the ICC to find consistency with the public interest, its power over such merger as here involved is "exclusive and plenary." The Commission can exempt a merger from federal and local laws where necessary, and if a railroad is concerned, can decide whether restraint of trade is involved.
(2) Complaint that ICC applied an improper standard constitutes an attack on Congressional policy. The court will not override a declaration of policy by Congress.
(3) Power of ICC over mergers is not limited to consolidations necessary to provide adequate public service. Its function to apply transportation acts does not authorize it to enforce the Sherman Act as such.
(4) The Transportation Act of 1920 puts emphasis on building up a system of transportation adequate to national needs, not on free competition. The FMCA in origin and legislative history shows that under particular conditions competition can prove detrimental to public interest. ICC is not obligated to test proposals for all motor consolidations by anti-trust law standards.
(5) Though ICC is not free to ignore effect of mergers on competitors, the maintenance of competition becomes significant only if competition helps reach the objectives of the national transportation policy. It found competition would remain after consolidation.
(6) Commission findings that the consolidation was "consistent with the public interest" did not exceed the standards set up by Congress.
(7) Failure of the ICC to provide the Antitrust Division the information desired by the latter has no bearing on the record.
(8) Findings and evidence support the ICC decision that Associated Transport would not be affiliated with a rail carrier.

From affirming of lower court approval of the ICC order Justices Murphy, Black and Douglas dissented. They conclude that the majority view defers to the policy-determining authority of Congress; recognizes that ICC power to approve consolidation is not confined to those necessary to provide adequate transportation service; and while acknowledging competition among carriers as a continuing factor, views competition as secondary to the objectives and requirements of the national transportation policy.

(B) *Transfers of Authorization.* The ICC has wide authority over transfers of certificates and of permits, but the power thus conferred by Section 212(b) and the authority over mergers "shall not apply where the total number of motor vehicles involved is not more than twenty."[67]

The United States filed an information against one Resler for operating interstate motor carrier service in Colorado without a certificate from the ICC. Resler denied violation of the statute saying that he had obtained from holder Brady the certificate previously granted by the ICC. All parties agreed that not more than twenty vehicles were involved. Conclusion of the district court that ICC approval was not required for the transfer

[66] *McLean Trucking Co.* v. *United States*, 321 US 67, 88 L. Ed. 544.
[67] Section 213 (e).

was followed by review in the Supreme Court, where two questions were considered; Does 213(e) put beyond the reach of 212(b) the transfer of operating rights where not more than twenty vehicles are involved? Does the FMCA confer on the ICC authority to require Commission approval "as a condition precedent to an effective transfer which is subject to 212(b)?

In an unanimous opinion the Court disposes of question one: "The obvious sense of Section 212(b) could not be expressed more aptly than in the language quoted.[68] Section 213(e) is equally explicit. Read together [they] can mean only that a transfer involving not more than twenty vehicles is governed by Section 212(b) and the regulations issued pursuant to it. The phrase 'except as provided in Section 213' was intended to remove from the sweep of 212(b) only those transfers which were within the compass of Section 213. It was never intended to place beyond the reach of Section 212(b) the transfers which Section 213(e) expressly placed beyond reach of Section 213."

Warrant for Commission insistence on discretion, to approve or disapprove transfer of operating rights, as involved in the second question, the Court found in that phrase of Section 212(b) "pursuant to such rules and regulations as the Commission may prescribe;" also in that portion of 204(a)(6) which directs the ICC to "administer, execute, and enforce all provisions (of the Act), to make all necessary orders in connection therewith and to prescribe rules, regulations, and procedure for such administration." The Court clinches the argument by observing that Section 213(a)(1) "expressly stipulates that the approval of the Commission must precede a transfer which is subject to Section 213."[69]

Significance

Because of vested rights inuring to bona fide operators on a fixed date prior to enactment of the statute, the FMCA provided for ICC authorization (by certificate to common carriers and permits to contract carriers) without requiring applicants to *prove* public convenience and necessity, proof of which has always been required of applicants seeking authorization for de novo operation. To get authorization, grandfather applicants need demonstrate only bona fide service as of prior date. While incidental, sporadic, and potential service fall short of bona fide operation and actual and substantial service constitutes the standard of measuring bona fide operation, the latter became largely a formality easier to demonstrate than to meet the public convenience and necessity test traditionally exacted of applicants for de novo operation of motor carrier service.

As was to be expected, administrative and judicial interpretation have supplied much of the total meaning of the FMCA. Illustrations of this development appear in the refusal to allow substitution of a different type vehicle from that used prior to critical date; in imposing restrictions on area and points served, routes covered, and commodities carried; in authorizing service request for which applicant had withdrawn before final hearing; and in recognizing that a railroad may become a motor common carrier under the "control and responsibility" test devised by the ICC, approved by the Supreme Court with the direction that this control and responsibility must, under statutory provision and Congressional intent, rest in the railroad rather than in the motor vehicle operators who

[68] "Except as provided in Section 213, any permit or certificate may be transferred pursuant to such rules and regulations as the Commission may prescribe." Section 212(b).

[69] *United States* v. *Resler*, 313 US 57 ,85 L.Ed. 1185 (1941).

under contracts with the railroad transport for the latter goods accepted and delivered in the name of the railroad itself.

Under the statute the ICC has wide discretion, its expert judgment has been generally respected, and the Court has proved reluctant to reverse the ICC decisions. The ICC looks to reality and not to appearances in exercising the regulatory function.

As revealed in the Resler, McLean Trucking and Carolina Freight Carriers cases, the Court shows much deference to the intent and purpose of Congress, and the discretion of the ICC. We agree, however, with the dissenters in the Gregg Cartage case that the Commission and Court in holding the applicant wholly responsible for his going broke because of failure of the insurance company whose cargo policies the ICC had previously approved. And thoroughly warranted, we consider, is the Court's negating the ICC refusal to admit evidence as to the economic effect of certificating a railroad on the independent motor carriers concerned.

We observe finally that competition is continuing to decline as a factor in the authorization of transportation by motor vehicle. Adequacy and efficiency of transportation service existing and proposed constitute prime factors in the national transportation policy.

Cities Meet the Need for Housing Research

An Appraisal of the Development and Use of Current Housing Data by Local Residential Research Committees†

By DOUGLAS V. CANNON*

ONE of the most promising trends in the field of housing in the past decade has been the increasing recognition of the need for dynamic and sustained local research. Such recognition is exemplified in the large number of cities which, on their own initiative or in partnership with the federal government, have made housing surveys since the war. Comprehensive surveys made, for example, in Chicago, San Diego, Seattle, Pittsburgh, Kalamazoo, and Wichita—to mention only a few cities—have added significantly to our knowledge of the housing market in these areas.[1]

Great strides also have been made by some cities, for example, Denver, Chicago and Cleveland, in developing procedures for keeping a "perpetual inventory" of housing, population and other related economic and social factors.[2] At least one city—Milwaukee, Wisconsin—has pioneered in still another related type of community enterprise: 5 years ago a clearinghouse was established to facilitate the exchange of research materials, methods, ideas and experiences of all local public and private agencies engaged in economic or social research.[3]

Basic housing research, while not yet extensively practiced, is recognized today by most city and county planning commissions as essential to sound urban planning and redevelopment. Research, likewise, is receiving increasing recognition from both state and local housing authorities.

Outstanding, and in some respects unique, among the many examples that reflect this trend toward creative housing research, is the development of what may be called for purposes of this discussion

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[1] *Chicago's Housing Need—An Interim Measurement* (Chicago Housing Authority, 1949); *A Housing Program For Pittsburgh and Allegheny County*, Part II of the Housing Survey (Allegheny Conference on Community Development), January 1949; *A Report on the Economic Base of the Brockton, Massachusetts Area* (Brockton Committee for Economic Development, Homer Hoyt Associates, 1949); *Greater Seattle Housing Market Survey* (Mayor's Emergency Housing Committee, University of Washington, Seattle, 1948); *Housing in Broome County—A Five-year Forecast* (Broome County Planning Board, Binghampton, N. Y., 1948); *Survey of Housing in Waterbury* (Housing Authority of the City of Waterbury Connecticut, 1948); *Metropolitan San Diego Housing Survey* (San Diego State College Foundation, 1948); *Housing Needs in Greater Kalamazoo* (W. E. Upjohn Institute for Community Research, December 1948); *Housing in Wichita: 1947* (City Planning Commission, Wichita, Kansas, 1947); *Residential Areas—An Analysis of Land Requirements for Residential Development, 1945-70* (City Planning Commission, Cincinnati, Ohio, 1946); *Housing Survey—Consumer Demand Survey of the Decatur, Illinois Area* (City of Decatur, National Housing agency, 1946); *Housing Goals for Chicago* (Chicago Plan Commission, 1946); *Economic Status of the New York Metropolitan Region in 1944* (The Regional Plan Association, Inc., 1944).

[2] See "Housing Trends in Denver, 1939-1949," *University of Denver Reports*, Vol. 25, No. 2 (Bureau of Business and Social Research, 1949); Social Science Research Committee, *The Chicago Community Inventory* (University of Chicago, 1947), also, CCI's *Report of Activities for the Calendar Year 1948* (University of Chicago, 1949); "Housing in the Cleveland Community, Past, Present and Future," *The Real Property Inventory of Metropolitan Cleveland, Inc.* 1947), also, Howard Whipple Green, "Origin and Development of a Continuous Real Property Inventory," *Journal of Land & Public Utility Economics*, August 1940.

[3] *See Who's Got the Answer?*, together with Statement of Purpose (The 5th Annual Research Institute), Research Clearinghouse of Milwaukee, Milwaukee, Wis., Dec. 9, 1949.

"local residential research committees." Such research groups now exist in Los Angeles, Memphis, Miami, San Francisco and Seattle; and other similar groups are in the making.

Each local residential research committee is typically made up of organizations having a common concern for the behavior of the local housing market—whether it be from the point of view of the mortgage lender, the operative builder, the land developer, the real estate appraiser, or the government official; such organizations have cooperated together to the end that each might have access to dependable, up-to-date facts on conditions and trends in the local market.

In practice such fact-finding committees, through their periodic surveys and integrated reports of market trends, appear to have accomplished much more than their immediate purpose. I am thinking specifically of the confidence and respect that such timely, factual reporting has earned among those who have had the responsibility for policy decisions upon such important public questions as war priorities, rent control, mortgage insurance, public housing, veterans' emergency housing loans and the like.

As important as it might be to describe the structural organization and operating procedures of each local residential research committee,[4] this discussion necessarily is restricted to the background and development of the local committee concept, and to an appraisal of the current housing data series developed by individual committees.

For the convenience of readers this analysis is divided into four parts: *first*, the underlying reasons giving rise to local residential research committees; *second*, the history and characteristics of the four oldest of these committees; *third*, individual housing data series which these committees have developed to date; and *fourth*, additional research activities and data series which challenge the attention of all local research groups.

Background of "Local Residential Research Committees"

Housing has always been a local problem. Only in the past 15 years has it been given legislative recognition as a problem of continuing national concern. The most recent manifestation of national concern was the enactment of the Housing Act of 1949 which provides, for the first time in our history, a statutory basis for a nationally coordinated housing policy in respect to private home-financing, slum clearance, public housing, urban redevelopment and economic and technical research.

The Housing Act of 1949 also provides, for the first time, permanent authority for taking periodic stock of our local and national housing resources.[5] The first Nation-wide comprehensive survey of housing was made in 1940 under a special appropriation in conjunction with the 1940 decennial census. Beginning in April 1950, a reassessment of the Nation's housing resources will be made regularly each ten years as a part of the population inquiry of the decennial census. Federal surveys, such as the decennial census of housing and intercensal surveys, will make available to local housing research groups an increasing amount of city, county and metropolitan area data.

Notwithstanding the large number of real property surveys and market analyses

[4] See Elden Smith, "Finding the Facts About Local Housing," *FHA Insured Mortgage Portfolio*, Fourth Quarter 1940, Vol. 5, No. 2, P. 8; E. O. Morgan, "Residential Research Aids in Practical Planning," *The Savings and Loan Journal*, October 1944; B. W. Horner, "Memphis Plan of Housing Cooperation," *FHA Insured Mortgage Portfolio*, First Quarter 1948, Vol. 12, No. 3, p. 5; and Conrad C. Jamison, "Los Angeles Finds the Facts on Housing," *FHA Insured Mortgage Portfolio*, Second Quarter 1948, No. 4, p. 9.

[5] Sec. 607, Public Law 171, 81st Congress.

developed by Federal housing agencies over the past 15 years, it is commonly recognized by Washington that it is the locality, not the Federal Government, that is in the best position to perform continuing research on local problems and to make current surveys of changing conditions in local housing demand and supply. The national housing research program recently authorized by the Congress provides statutory support to the already accepted policy of encouraging localities to attack their own housing problems through local research and self-analysis. The Federal Government's policy with respect to local housing research may be summed up as largely one of helping communities to help themselves.

A statement on the background of local residential research committees would be incomplete without acknowledging the specific role that the Federal Housing Administration has played, and continues to play, in encouraging their development. From its inception the FHA, through its housing market analysis program, has fostered the development of local housing research.[6] This activity rests on the conviction that, while the problems of housing are of both national and local concern, the responsibility for establishing the statistical facts and trends necessary for analyzing local markets rests primarily with those in the community whose interest are directly or indirectly related to the stability of the housing market.

What are the basic circumstances which have given rise to the concept of approaching housing research through such cooperative civic groups as local residential research committees? In one form or another the general statement has been made that statistics on the behavior of the housing market are not available to a degree consistent with the important place which this type of real estate occupies in a local economy. Basically, it was a growing recognition of this need among the many different users of housing data that gave rise to the concept of local research committees.

Unwittingly perhaps, those who advanced the idea of "local residential research committees" were but putting into practice the sage advice of Richard T. Ely who said 25 years ago:[7]

"Economic research is of no avail if its results cannot be brought to the attention of those who can use the results. In that event it is of no special usefulness."

In recent years there has been an increasing awareness among local lenders, realtors, builders, appraisers, and others that, to safeguard their business and community interests, there was a practical need for a central source of current reliable statistics which would reflect conditions and trends in the local housing market. It was the existence of this need in some of our largest metropolitan cities that prompted real estate and allied business interests to pool their statistics and research facilities so that each might have the benefit, so to speak, of the "other fellow's" data, as well as access to current facts on the housing market which an individual organization, for lack of time and money, cannot collect for itself.

Also evident is the fact that real estate practitioners in an increasing number of cities are coming to the conclusion that national real estate services, while important, are not sufficient for interpreting local situations. Comparative area sta-

[6] See Warren J. Lockwood, "Housing Market Analysis in the FHA," *The Appraisal Journal*, July 1949; also, Federal Housing Administration, "Selected Sources of Basic Housing Statistics for Use in a Local Housing Market Analysis," Division of Research and Statistics, (Washington, D.C.) May 1, 1948.

[7] *The Journal of Land & Public Utility Economics*, January 1925, p. 6.

tistics demonstrate that local reaction to national economic forces may vary widely between communities and regions, with the result that local trends may differ sharply, both in timing and degree, from national trends.

The need for continuous reporting of statistical facts is probably most apparent in the large metropolitan areas which are experiencing high rates of in- and out-migration, as well as a continual internal shifting of population. Real estate practitioners and others interested in housing and economic trends in such dynamic areas are gradually realizing that "one-time" housing surveys are not the answer to the need for current housing data. In contrast to the measurement of housing conditions as of a specific date, local residential research committees report statistical trends at the time changes in the market are actually taking place.

Demand for housing fluctuates widely in response both to movements of population and to changes in levels of income and employment. On the other hand, houses are largely stationary and characteristics of the housing supply undergo relatively little change from year to year. It is largely this situation of a flexible demand and a relatively inflexible supply which accounts for such violent fluctuations in the housing industry. To discover the turning points in the trends of significant *demand* data, and to understand their implications, requires continuous research and surveys of market conditions at regular intervals.

It is the expectation of local residential research committees that the wide-spread availability of facts to show the changing relationship of housing demand and supply will tend to stabilize the judgment of those in the business community who supply the housing market—and, in time, it is hoped that this will result in a stabilizing effect on the market itself.

In summary, local residential research committees would appear to provide a practical and creative "grass roots" method: *first*, for keeping current check on demand and supply conditions in a local housing market; *second*, for developing and testing new survey methods to reflect conditions and trends that are peculiar to a local market; *third*, for quickly adjusting existing sampling techniques to fit changing local conditions; *fourth*, for maintaining reliable statistical data series between "benchmark" years established by federal and state censuses; and *fifth*, for objectively reporting at regular intervals current statistical facts required by the local housing industry and by the community.

Development of Individual Committees

The concept of local residential research committees can perhaps be understood best by examining the development and characteristics of existing committees.

Los Angeles Committee.[8] In many respects the history of local residential research committees *is* the history of the Los Angeles Residential Research Committee. This Committee was founded in 1939 in the wake of the Depression, and it has made its mark on practically every local committee of its kind since that time. Just as the Los Angeles County Planning Commission was first to pioneer in county planning some 27 years ago, the Los Angeles Residential Research Committee was first to venture in what the Committee itself describes as, "a non-profit community organization for the development and distribution of factual information affecting housing, mortgage lending, construction and related aspects of real estate in Los Angeles County."

Perhaps the most outstanding fact in the history of the Los Angeles Committee

[8] Residential Research Committee, *Residential Research Report*, quarterly, Los Angeles, California, 1939 to date.

is that it has met continuously over the past 10 years, having survived the critical periods of both the war housing shortage and the postwar real estate inflation. What brought this Committee into being was a common concern over the *housing surplus*—amounting to something like 69,000 dwelling units (including 11% of all multi-family units), which, according to the Census, stood idle in Los Angeles County in 1940. Ironically enough, what has helped to hold the Los Angeles Committee together in the postwar years is an equally common concern over the *housing shortage* and its effect on home prices—typical small homes in Los Angeles, according to the Committee's own index, having sold at the peak of the postwar market for nearly three times their price in 1940.

Today, representatives of more than 140 separate local organizations, covering practically every private and public real estate interest in Los Angeles County, meet once every three months to review and discuss the local housing situation as it is reflected in the facts and trends assembled by its survey technicians and presented in the Committee's regular quarterly report.

Through the war and postwar years the Los Angeles Committee has been a major contributor of statistical data and, indirectly, a contributor of technical advice to the many government agencies responsible for applying national housing policies to local areas. It is significant that the Governor of the State of California and the Mayor of Los Angeles City have relied heavily on this Committee for its scientifically-collected and impartially-reported facts with respect to conditions in the Los Angeles housing market.

Miami Committee.[9] It may be more than a coincidence that across the continent from Los Angeles in another rapidly expanding area, which in past years has been similarly fraught with real estate booms and excess subdividing, another local housing research group was formed. Three years ago the School of Business of the University of Miami, with the financial help of local builders and lending institutions, organized the so-called "Miami Residential Research Project."

Membership in the Miami Residential Research Committee is presently restricted to the project sponsors and representatives of the University; its goals, however, are essentially the same as those of the Los Angeles Committee: to study the behavior of the local housing market and to make accessible the current facts on changing conditions in the market. Since April 1948 the Miami Committee has produced some 15 statistical research reports showing the trends of selected housing data for the Greater Miami Area. Understandably, the Committee's greatest current concern with respect to the housing situation is the potential danger inherent in Miami's present building boom.[10]

A unique feature of the Miami Committee is its access to the housing and related economic data produced and maintained by the "Statistical Exchange of South Florida." The "Exchange" is affiliated with the University of Miami and is described as "a cooperative enterprise of governmental, business and social organizations interested in the collection of facts and figures."[11]

Memphis Committee.[12] Still another type of local cooperative research group (which is making its influence felt on

[9] Residential Research Committee, *Miami Residential Research* (The University of Miami, monthly, Miami, Florida, 1948 to date.)

[10] Reinhold P. Wolff, *Discussion of Urban Land Studies in Miami*, a paper delivered before the Committee on Housing Research of the Social Science Research Council, Chapel Hill, North Carolina, May 6, 1949.

[11] *Ibid.*

[12] Citizens Housing Committee, *Statistical Report* (monthly, Memphis, Tennessee, 1947 to date).

local building practices and policies) is the Memphis Citizens Housing Committee. This Committee had its inception in 1940 when the Mayor of Memphis appointed a housing committee as an adjunct to the Civilian Defense Council. The Memphis Committee is composed not only of groups financially interested in real estate, but also of groups interested in the social improvement of the area's housing conditions.

While the Memphis Committee has existed for 9 years, it was not until 1947 that the Committee recognized a need for current statistical reports on trends in the local housing market. According to the Committee, a monthly statistical report was needed to provide its members with a basis for judging the status of the "community's housing goals," and to enable them to adjust their individual operations and policies with respect to the housing which was being built in the Memphis area. It is this relatively new role of fact-finder and producer of regular periodic reports of housing statistics that distinguishes the Memphis Committee from other similar local housing groups which had their origin during the war.

The Memphis Committee has acted both as a clearing house for statistical facts on housing, and as a coordinator of community policy with respect to local housing problems. For example, the Committee has been the medium for securing public acceptance and builders' cooperation in the provision of private war housing, in obtaining favorable action on public housing for Negro families and, more recently, in guiding Memphis' postwar rental housing program for veterans.

San Francisco Bay Area Committee.[13] Not since the earthquake of 1906 has the San Francisco Bay economy been so completely shaken as it was by the last war. Number one among the many postwar problems of the area was the housing shortage with its accompanying inflation in real estate prices. This was the background in which mortgage lenders, land developers, builders, appraisers and other local real estate interests agreed in 1948 to pool their statistical data and technical "know-how" to form the Bay Area Real Estate Research Committee.

The San Francisco Committee was organized by the San Francisco Bay Area Council and the University of California. According to its own description, it is a "non-profit organization for the development of factual information on conditions affecting real estate, mortgage lending, construction and related problems in the nine Bay Area counties."

The San Francisco Committee is distinguished not only by a high level of creative research, but also by its affiliation with the San Francisco Bay Area Council. The Council itself is a unique example of a non-profit research and and planning organization which is "devoted to the economic and civic development of the nine counties bordering San Francisco Bay." Affiliation with the Council gives the Committee access to a rare source of local statistics and technical assistance.

Other Local Committees. In the past year the Society of Residential Appraisers, through its local chapters, has emerged as a sponsor of "local residential research committees" in a number of areas throughout the country. Areas in which greatest progress has been made to date include Seattle, Nashville, and Chicago. In December 1949 the Seattle Real Estate Research Committee, in cooperation with the Bureau of Business

[13] Real Estate Research Committee, San Francisco Bay Area Council, Inc., *Bay Area Real Estate Report* (quarterly, San Francisco, California, March 1949 to date).

Research at the University of Washington, released its first quarterly research report.[14]

Judging by the location of the five committees in actual operation up to this time, it seems evident that the rapidly expanding areas of the country where housing problems are of greatest immediate concern have been the first to recognize the need for continuous housing research. Also evident is the fact that each local residential research committee organized since the end of the war has been in partnership with a university—a working relationship which would seem to provide both the university and the housing industry with unusual opportunities for practical economic research.

Types of Current Data Series Developed by Committees

Here we are concerned with current housing data series—that is to say, monthly, quarterly and annual series—as distinct from *benchmark* data which are provided either by special "one-time" surveys or by federal and state census.

Broadly speaking, among the many examples of current housing data series developed up to this time by local residential research committees are: residential vacancies (single- and multi-family), building permit activity, selling prices, unsold inventory of operative builders, construction costs, vacant lot prices, residential rents, real estate transfers, subdivision activity, mortgage recordings, foreclosures, deed recordings, etc.

The problem of appraising the validity and use of all the various housing data series would not be easy, since each committee applies its own techniques for data collecting, and it is not possible to examine each series individually. Rather than generalize on all of the current data series, a few of the more important series have been selected for discussion.

Residential Vacancy Data. Few indicators of change in the demand for housing are more basic than the vacancy factor. It is in the development of this type of time series, that, in my opinion, local residential research committees have made one of their most useful contributions to housing research.[15] Vacancy surveys, like several others produced by local committees, necessarily have been on a sampling basis. Those close to the scene of market activities, however, are in the best position to judge the validity of the samples and for making necessary adjustments to fit changing conditions in a community.

The Los Angeles Committee, which is to be credited with the most extensive research in this field, has developed a quarterly series of single-family vacancy ratios which date back to the Committee's first research report in 1939. This survey, based on a stratified sample of standard single-family homes by rent groups, is made four times a year in thirteen separate areas of Los Angeles County.

A similar quarterly sample survey of vacancies is also made of *unfurnished* multiple dwellings in old and relatively new apartment areas. Until recently the Los Angeles Committee made periodic vacancy surveys covering *furnished* apartments based on a combination of field, mail, and telephone inquiry. It is noteworthy that after nearly ten years the furnished apartment survey has been discontinued because of the time and difficulty involved in maintaining the Committee's high standards of reliability.

It is a significant fact that the Los

[14] Real Estate Research Committee, *Real Estate Report for City of Seattle and Metropolitan Area, Washington* (Seattle, Washington, October 1949).

[15] The Bureau of Business and Social Research of the University of Denver, in cooperation with the Market Survey Committee of the Denver Real Estate Board, has made a comprehensive survey of vacancies in business and residential properties each September since 1930.

Angeles Committee's vacancy data series has been a major contributing factor to the decisions of Federal agencies with respect to problems of mortgage insurance and rent control in the Los Angeles area.[16]

Building Activity Data. In a discussion not long ago with a group interested in sponsoring local residential research committees, I recall their surprise when I placed the collection of adequate building data at the top of a list of subjects on which further local research was needed. They were surprised because they had assumed that such basic housing statistics were readily accessible in some convenient form either in the local building departments or in the records of the U. S. Bureau of Labor Statistics.

In the case of most metropolitan areas, there continues to be a wide gap between the official records of residential building activity and total additions to the housing supply. For the rural non-farm, unincorporated suburban areas, which do not require building permits, it generally has been necessary to estimate the extent and character of building activity.

In a few selected areas the BLS is overcoming this deficiency by developing series of "starts" data based on sampling in active building areas which do not require permits. Public utility connections also have provided a basis in some areas for estimating "completions" of newly constructed units.

A major accomplishment of the Memphis Citizens Housing Committee has been the establishment, through its cooperating members, of reliable methods for reporting monthly trends of building in order to reflect the total volume of all types of residential construction throughout the Greater Memphis Area. Practically all committees, however, continue to have the problem of developing reliable local sources of data on residential conversions, demolitions, and fire losses, as well as adequate data to reflect the construction cost of dwelling units for which permits are issued.

It remains a fact—difficult as it may be to believe—that most metropolitan communities today still do not know the volume or characteristics either of new residential construction or conversions taking place throughout their housing market areas.

Market Price Data.[17] The rise and decline of real estate prices are of particular importance to mortgage loan officers, since credit on real estate is usually advanced over a long period; moreover, home builders and real estate brokers, to stay in business, must adjust their operations to meet competitive price changes in the market; and to appraisers, a yardstick for measuring price movements is indispensable. This is perhaps the explanation for the fact that no data series developed by the Los Angeles Residential Research Committee has received more popular attention or been put to more practical use than the index of market sales prices of existing single-family houses.

The sampling technique for the market price survey used by the Los Angeles Committee was developed by the Security-First National Bank of Los Angeles in 1937 and was enlarged and refined by the Committee in 1943.[18] The technique is now being practiced in substantially similar form by committees in San Fran-

[16] Prior to the war, when the rising level of vacancies was of concern to most communities, the Federal Housing Administration utilized the Los Angeles Committee's sampling technique for measuring the quarterly trend of single-family vacancies not only in Los Angeles, but in Pheonix, San Diego, Salt Lake City and Denver.

[17] For a general description of the market price survey and a tabulation of price trends in the Los Angeles area since 1940, see Residential Research Committee, *Residential Research Report* (Los Angeles, California, November 1947), pp. 2-6.

[18] See R. Douglas Burrows, "Price Changes of Residental Property," *The Appraisal Journal*, April *1945*.

cisco and Seattle. The method, known as the "comparison method," is designed to show broker's estimates of current *selling* prices of typical houses in homogeneous sections of a market area. Separate trends are shown for older homes as compared with newer homes, and for homes priced in the lower, medium and higher-priced brackets.

That the selection of sample properties and the basic estimates of market value used in these surveys are more than "just an opinion" is attested to by the participation of such recognized appraisal groups as the Society of Residential Appraisers and the American Institute of Appraisers.

Unsold Inventory Data. A periodic inventory check of the volume and characteristics of houses unsold at the close of the building season would seem to be essential to all who have a financial stake in home-building. Every businessman knows that under most circumstances a rise in prices creates inventory profits, whereas a decline in prices results in inventory losses. Yet, ony a bare beginning has been made in the development of an adequate technique for "taking inventory" of unsold houses.

The lag in development of this important data series does not appear to be attributable to a lack of appreciation of the need for such data. Rather it seems to stem from the inherent difficulty of developing a practical sampling technique that is applicable to the rapidly growing and complex metropolitan areas where the need for such information is greatest. Thus far only the Los Angeles, San Francisco and Seattle Committees have attempted surveys of the unsold inventory.[19]

The intent of reporting unsold inventory data would not be to single out a project or subdivision where poor judgment or some isolated factor may have contributed to an overbuilt situation. The purpose would be to pool the experience data of all operative builders in order to measure the trends in market demand which all may have experienced in common, whether in the total market area or a particular segment of an area.

An accurate knowledge of an area's unsold inventory would help builders to avoid pricing themselves out of the market and to plan their next year's operations; and such facts would help government agencies, such as the FHA, in directing their commitments to houses of the type, price and location for which current trends indicate demand is expected to be the greatest.[20]

Construction Cost Data. It is a matter of statistical record that most residential building is done during periods of high or rising costs. Experience also has taught us that high construction costs, if they are in line with other costs, do not in themselves price home builders out of the market.

Local residential research committees have made some headway in the development of this important statistical series, though progress has not been commensurate with the benefits that may be derived from the data. Like the unsold inventory, the construction cost series remains as one of the most promising fields for local research.

Each month the Los Angeles Committee selects a sample of residential sales contracts between local builders and buyers and compares the stated cost in

[19] See Real Estate Research Committee, *Bay Area Real Estate Report*, January 1950, pp. 2 to 6.

[20] For the past two years the Los Angeles Residential Research Committee and the Federal Housing Administration through its Market Analyst in Los Angeles have experimented with an unsold-inventory technique which, if found adaptable to other metropolitan areas, will be considered for standard use in all of FHA's 72 insuring offices. This is but another example of how a federal agency and a local community have joined hands in the development of practical, creative research.

these contracts with estimates of what the cost for the identical properties would have been in 1940.[21] These cost changes are then reflected in an index representing an average of the entire sample each month. Since the index reflects total cost to the buyer, it reflects in full the changes in profit margins, gray markets, and labor efficiency, as well as changes in labor rates and material prices. The index does not, however, measure construction costs of operative builders, who characteristically account for the major portion of all residential building in the Los Angeles area.

From its inception the San Francisco Committee recognized the need for reliable cost data, particularly in view of the diversity of costs and building conditions within the San Francisco Bay area.[22] Beginning in March 1949 the component cost of basic construction items (plus a fixed estimate for profit and overhead) is computed each six months for the *typical* builder constructing a *typical* 1000 square foot row-house with garage in San Francisco, and a *typical* 1000 square foot bungalow with garage in each of five other major geographic segments of the Bay Area. This technique for reporting not only permits an index based on the average cost of a typical house, but it also provides committee members with an accurate picture of changes in the average cost of individual construction items.

Need for Further Housing Research

While this discussion might be concluded with a glowing statement of the promise that the future holds for the development of local residential research committees, I would like, instead, to point out ten specific areas of creative research which, in my opinion, challenge the attention of all local housing research groups.

1. *Employment and Unemployment Data.* The economic forces which support the housing market are too often disregarded in local housing research. Reliable data are needed to reflect the current volume and trend of local employment, unemployment and earning power. Increasing unemployment, accompanied by reductions in income, may be the forerunner of a rise in mortgage delinquencies and home foreclosures. Conversely, increasing employment opportunities, which attract new population, create major sustaining forces to high levels of housing demand and building activity.

2. *Income Data.* Trend data are needed to reflect shifts in the distribution of family income and changes in the relationship between incomes and cost of shelter or housing expenses. In this connection, sample opinion surveys are needed to reflect consumer attitudes and habits as related to spending the housing dollar.

3. *Savings Data.* Data on family savings by income class are practically non-existent at the community level. Yet the availability of savings is one of the most important factors in analyzing the market demand for the purchase of housing. Here is an opportunity for local banks and savings and loan associations to pioneer in the development of a research project that would be useful to practically every business interest in a community.

4. *Family Formation and "Doubling-up" Data.* Reliable trend data on population growth are generally recognized as a basic need, but more often than not such data are not available for an entire housing market area. More surprising, however, is the common tendency to overlook the significance of the changing rates of family formation resulting from changes in the marriageable age groups of our population, from war-delayed marriages, and from the declining long-term trend in the average size household. Trends in "doubled-up" families also have a significant bearing on housing demand; yet it is an

[21] For a description of this index and comparison with other indexes of building costs, see Residential Research Committee, *Residential Research Report*, Los Angeles, November 1947, pp. 8-9.

[22] See Area Real Estate Research Committee, *Bay Area Real Estate Report*, March 1949, pp. 8 and 39, and October 1949, pp. 24-27. Costs in January 1949 varied from $9.36 a square foot for a typical San Francisco row house to $8.42 a square foot for a typical California bungalow in Alameda County directly across the Bay.

area of local research which remains practically untouched.

5. *Conversion Data.* Inadequate statistics reflecting changes in the structural use of existing property may be scored as a weakness in the inventory data of almost every community. This is an area of research that is "wide open" for local action. Basically it would seem to be a problem for solution by local building departments. Adoption of uniform record-keeping systems and standard definitions for conversions would appear to be the first step needed in this direction.

6. *Rent Data.* Perhaps rent controls are the explanation of why this important data series is currently being overlooked by most local research groups. Certainly it is not because of any failure to recognize the need for reliable data to reflect the trend of rents at various price levels and quality standards in the market.

7. *Delinquency and Foreclosure Data.* Trend data on mortgage delinquencies are among the most sensitive indicators of market change; yet, only fragmentary evidence of such trends is generally available in a community, and local mortgagees appear to be giving little serious attention to the development of this series. While greater advances have been made in the development of foreclosure data, there continues to be a need for much more research in this important field.

8. *Slum and Blighted Area Data.* Surveys of local committees characteristically omit slum and blighted neighborhoods and concentrate, instead, on the newer areas generally occupied by families in the middle and upper income brackets. More information is needed on the characteristics of housing conditions in neighborhoods occupied by families in the lower income brackets, particularly as related to public housing.

9. *Advance Planning Data.* Specific reliable data with respect to the advance plans of city and county planning commissions, urban redevelopment agencies, public transportation departments, highway departments and other planning agencies of local governments are indispensable to appraisers, builders, loan officers and others who have a responsibility for knowing the changes in prospect for an area's growth and development.

10. *Real Estate and Other Tax Data.* As an important and growing factor in the cost of home-ownership and in the operations of rental housing projects, there is an increasing need for creative research and the development of current data on the effects of taxation by all levels of government.

It would seem self-evident that private and public decisions with respect to the housing market can only be as good as the facts upon which they are based. In my judgment, the development of local residential research committees offers one of the most promising, as well as one of the most democratic, ways of substituting integrated facts for disjointed opinions. At the same time, the research reports of such committees offer a realistic means of stabilizing the judgment and emotions of those whose decisions with respect to housing have a vital effect upon the entire community.

Reports and Comments

The President's Water Resources Policy Commission

PRESIDENT Truman, on January 3, 1950, established a Water Resources Policy Commission consisting of seven members, to study and make recommendations to him on existing federal legislation and policies in the water resources field. Members are Morris L. Cooke, Consulting Engineer, Philadelphia, Chairman; Paul S. Burgess, Dean of Agriculture, University of Arizona; Lewis Webster Jones, President, University of Arkansas; Samuel B. Morris, General Manager and Chief Engineer, Department of Water and Power, Los Angeles; Leland Olds, New York, former chairman, Federal Power Commission; Roland R. Renne, President, Montana State College, and Gilbert F. White, President, Haverford College.

The President asked that the Commission's Report be submitted to him not later than December 1, 1950. Thus, the Commission has less than a year in which to fulfill its assignment.

Why the Commission Was Appointed

In establishing the Commission, President Truman said in part:

"Within the past several years the need for careful review and re-appraisal of our national water resources policies and related land use problems has become increasingly apparent. On several occasions, during the recent session of Congress, I called attention to the need for developing a consistent and comprehensive policy with regard to our whole water resources program. In many cases, piecemeal or partial approaches to a problem as broad as water resources development tend to confuse, rather than clarify many of the basic, underlying issues. It is essential in my judgment that a comprehensive study and review be made of all existing water resources legislation and policies and that recommendations be made in the full knowledge of national needs and objectives.

"Therefore, I am creating by Executive Order a temporary Water Resources Policy Commission of seven members to study and to make recommendations to me on the policies which should be followed by the Federal Government in fulfilling its proper responsibilities for the development, conservation, and use of the Nation's water resources."

The Commission's Assignment

The Executive Order establishing the Commission directs that it:

"shall give consideration in particular to (a) the extent and character of Federal Government participation in major water resources programs, (b) an appraisal of the priority of water resources programs from the standpoint of economic and social need, (c) criteria and standards for evaluating the feasibility of water resources projects, and (d) desirable legislation or changes in existing legislation relating to the development, utilization, and conservation of water resources."

By the terms of the Executive order, the Commission is to confine its studies and recommendations to *policies* which should be followed in the water resources field. The proper allocation of functions among agencies or who is to do what, and related problems of organization, while admittedly closely related to the development of consistent policies in the field of water resources, have been studied by the Commission on the Organization of the Executive Branch of the Government (The Hoover Commission), and are now under active consideration in the Executive Branch. The President, therefore, requested the Commission to confine its recommendations to the questions of policy under the four main headings indicated above, together with related legislation. But aside from matters of organization, the Commission's assignment is as wide or broad as water resources and necessarily includes consideration of related land uses. Consequently, the Commission must come to grips with many major land economic problems.

It should be obvious from the assignment given the Commission that the water resources problems to be studied have a direct bearing on the immediate and future economic and social development of the nation, and on matters vital to national defense. They involve such significant matters as the economic and social principles and standards

which should govern in estimating benefits and costs of water resources projects; the allocation of joint costs among multiple purposes; whether and to what extent a given beneficiary of multiple-purpose projects, such as power, should pay for subsidies to other beneficiaries such as irrigation, recreation, navigation, or flood control; the place of water development projects in an adequate public works program and their particular contribution to economic stability and to meeting the vicissitudes of the business cycle; the need for increasing the country's agricultural production and the relative economics of reclaiming land by alternative methods such as irrigation, drainage, clearing, flood protection, etc.; the justification of acreage limitations on federal reclamation projects, such, for example as the present 160-acre limitation provision of the Reclamation Law; the equitable sharing of costs through reimbursement by the various direct and indirect beneficiaries from federal water resources projects and programs; the place of federal hydroelectric power development in multiple-purpose river basin programs and in the national security program; and the balancing of regional and national welfare considerations in connection with river valley or major watershed basin development.

For more than a century the federal government has played an important role in harnessing water resources and converting them to the beneficial use of the nation. During this time water resources policies have been modified and adjusted to meet the growing needs of a complex and dynamic society. Frequently, new policies have been developed to meet specific situations or to solve particular economic or social needs of the time, with the result that many inconsistencies and conflicts have developed in our national water resources policies. A thorough-going review and re-appraisal is now in order. The Commission hopes, as a result of its work, to be able to recommend basic policies covering all phases of water resources development which, if followed, will result in programs that will meet the needs of a sound and expanding national economy.

Procedure for Carrying Out the Assignment

The Commission has worked out a broad program of activities to fulfill its assignment. Obviously, the short time available to the Commission before its report is due precludes any possibility of conducting extensive new research or studies. Even were adequate time available, it is doubtful that this would be as productive of desired results as are some of the techniques or procedures which the Commission is following. After all, numerous federal, state, and private agencies have studied many water resources problems intensely in recent years, but no one agency has brought all of the various studies, problems, and recommendations together to develop an adequate over-all picture to cover the diverse phases of water resources policies involved in an adequate national program. To achieve this goal the Commission has developed a ten-point program of activities.

First, the Commission prepared a general outline of the field to be covered and sent it to every agency in the nation that it thought might be interested in water resources. The Commission invited them to send to it any ideas, problems, and recommendations they thought the Commission should consider. They were asked to have such a statement in the hands of the Commission by April 1, but were instructed that they could supplement this statement with additional material later if they desired to do so. This letter went to about 750 public and private agencies, including water users associations, municipal water departments or bureaus, public utility associations or units, state agencies such as water conservation boards and state engineers' offices, interstate compact committees, farm, business, and labor organizations, development associations, and many others. A great many returns have been secured by the Commission with numerous helpful suggestions, ideas, and recommendations.

Second, a letter was sent to the governors of all the states explaining the Commission's assignment and inviting them to give the Commission any suggestions they or any of their state agencies or departments might have in connection with water resources policy.

Third, the Commission wrote to the attorney general of each state, asking that he furnish the Commission with a report on the water laws of the state and of the judicial decisions interpreting the laws.

Fourth, a nine-page statement of eighteen major questions or phases of water resources policy was prepared and sent to the presidents of eighty universities and colleges.

These included every land-grant college or university in the country and others, both public and private, where some of the departments or staff had shown special interest in or had given consideration in their teaching or research programs to water problems. The presidents were requested to ask those members of their faculties who are interested and qualified to consider these questions and to let the Commission have the benefit of their individual and group thinking. The Commission requested that the discussions of the questions be sent to it by the end of May in order that the Commission and its staff would have time to study the views carefully.

A letter somewhat similar to the letter sent to approximately 750 public and private agencies together with some questions primarily involving agricultural aspects of water resources problems and policy, was sent to the directors of each of the state agricultural experiment stations, requesting their views and ideas.

Fifth, a group of fifteen leading economists and sociologists was called in for a week end in Washington, D.C., to discuss the program of work with members of the Commission and its staff. An accountant and an engineer also met with this group and many helpful suggestions were secured concerning the over-all program of work and the questions that were sent to colleges and universities. This group may be called in again at a later date to go over certain aspects of the Commission's work.

Sixth, the Engineers Joint Council[1] had started a study of water resources by a general committee before the Commission had been established. The Commission sent this general committee memoranda covering its assignment, some of the major problems needing solution, and the eighteen major questions sent the colleges and universities. The Joint Council has appointed several committees or task groups to study various phases of water resources policy. About 120 engineers worked on these committees or task groups, and reports of each of the groups, together with an over-all summary and statement, are being made available to the Commission.

[1] A joint committee of the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, and the American Institute of Chemical Engineers.

Seventh, in the Executive Order establishing the Commission, President Truman stated that "all executive departments and agencies of the Federal Government are authorized and directed to cooperate with the Commission in its work and to furnish the Commission such information and assistance as it may require in the performance of its duties." The Commission has requested personnel from certain federal departments or agencies to help it in its work. These staff members are selected by the Commission and loaned to it to work on specific assignments. A liaison staff member in each of these departments assists in working out cooperative relationships with the Commission. The Commission has secured personnel from the following federal departments or agencies: Agriculture, Interior, Defense (Corps of Army Engineers), Commerce, the Public Health Service, the Federal Power Commission, the Interstate Commerce Commission, the Tennessee Valley Authority, and the Bonneville Power Administration.

The Commission also sent out comprehensive requests to these agencies for reports of their plans and programs in twelve of the major river basins. The Commission also requested of these agencies a statement giving their interpretation of what they believe the the existing laws mean in terms of their responsibilities for water resources development programs in the nation.

Eighth, in addition to the staff loaned it by federal departments and agencies, the Commission has recruited a small staff of approximately sixteen experts of its own, largely from college and university staffs and private life. These include agricultural economists, economists, geographers, cartographers, political scientists, engineers, and others. These men have been selected for their knowledge and experience in various water resources matters and are employed from a few days in some cases to several months in others, depending upon the particular assignment involved.

Ninth, the Commission has divided its work into eleven major divisions and has assigned committees consisting of members of its own technical staff and those loaned to it by federal agencies, to prepare extensive reports on each of these major phases of water resources policy. These eleven committees and their fields of study give a good picture of the scope of the Commission's work.

One of the committees has as its assignment an *evaluation of selected typical water resources projects already constructed*, to furnish a guide to future project selection policy. The analysis will appraise the success or lack of success of the projects both technically and economically to determine, among other things, (1) the extent to which they have accomplished the designated purposes; (2) whether they are being used economically; (3) the extent to which original estimates of benefits and costs have been realized; (4) repayment experience; (5) whether any projects are not justifying their annual operation and maintenance cost; and (6) what conclusions should be drawn as to future policy.

The *second* committee on *coordination of planning and project selection* will consider principles which will assure (1) consideration of all potential objectives of water resources projects and programs at any stages of planning in order to assure truly comprehensive, multiple-purpose plans for each basin; (2) that each objective be given its proper weight in the final program or project plan, with conflicting purposes resolved in terms of the specific national objectives; and (3) proper timing of all phases of the program in terms of national, regional, or local needs.

The *third* committee will determine the *minimum essential background information necessary for the sound planning of river basin projects and programs*. The objective is to establish standards which will assure that projects and programs will go forward on the basis of adequate data. Classes of data to be considered include maps; hydrologic data; sedimentation; geologic data; land classification, including soil analysis; and economic data, including measurement of need.

The *fourth* committee has for its purpose *the formulation of acceptable principles and procedures for determining benefits and costs* of water resources projects. Since April 1946, at the direction of the Federal Inter-Agency River Basin Committee,[2] a subcommittee on benefits and costs has been at work on this problem and the President's Water Resources Policy Commission is working closely with this Inter-Agency subcommittee. In May of this year the subcommittee completed its work and submitted a report which will be very useful to the Commission. The membership of the Benefits-Costs Subcommittee will also serve on the Commission's Committee on Reimbursement.

The *fifth* committee, that on *reimbursement*, will re-examine the possibilities of reimbursement by various classes of direct and indirect beneficiaries from federal water resources projects and programs, with the view toward assuring more equitable sharing of responsibility for the cost of such developments. Consideration of the basin account principle or other pooling arrangement will be made by this committee.

The *sixth* committee will consider *water resources policies involving land use economics*. These cover a wide range of subjects, such as (1) measurement of the need for increasing the country's agricultural production plant in terms of a projection of the requirements for farm products; (2) determination of the relative economics of reclaiming land by alternative methods, such as irrigation, drainage, flood protection, clearing, and the like; (3) modification of the 160-acre limitation of the Reclamation Law to permit adaptation to climatic and agricultural variations and yet preserve the anti-speculation principle; (4) assurance of reasonable uniformity of treatment of all reclaimed lands; (5) rehabilitation of long-established private irrigation drainage systems; (6) projects providing for supplemental or insurance irrigation of lands in humid regions; and (7) projects providing for land clearance and drainage.

The *seventh* committee will *review present federal power policy* with particular reference to such matters as (1) advisability of legislative recognition of hydroelectric power development as a correlative objective of federal appropriation for water-resources projects and not simply as incidental to construction of projects for irrigation, navigation, and flood control; (2) sale of hydroelectric power on the lowest reasonable cost basis, with public and cooperative agencies as preferential distributors; (3) integration of federal hydroelectric power plants into regional systems, including construction of transmission facilities and the postage-stamp zone policy in connection with marketing the power; and (4) relationship of federal hydroelectric power development to the reclamation program, including considerations in-

[2] Composed of representatives of the following federal agencies: (1) the Corps of Engineers, U. S. Army; (2) Department of the Interior; (3) Department of Agriculture; (4) Department of Commerce; and (5) Federal Power Commission.

volved in the case of power for irrigation pumping and use of power revenue to carry part of irrigation project costs.

The *eighth* committee is considering the *recreational possibilities of the conservation and use of water resources*, to formulate principles which will assure proper consideration of recreation objectives in the planning and carrying out of all water resource programs. Considerations which should govern decisions to preserve scenic and other recreational opportunities in their natural state, and the place of recreation as a correlative purpose rather than merely incidental in river basin programs, will be given careful study.

The *ninth* committee will consider federal programs and activities in *the construction and improvement of navigable waterways*, including navigation phases of multiple purpose projects. The importance of navigable waterways and the need of such waterways in the nation's economy will be analyzed, along with such matters as the effect of federal expenditures for navigable waterways on the economic health of competing forms of transportation, on the effective and economical use of the nation's transportation resources, and on the development of natural resources, commerce, and defense.

The *tenth* committee is preparing *consolidated reports on twelve major river basins*. These reports will present existing programs for development of these basins, will analyze water conservation and development opportunities or necessities in the several river basins, and present a comprehensive program for water development and conservation in these basins.

The last committee (the *eleventh*) is a *legal* committee whose duties are to study all water law—federal, state, and local, and to try to work out an adequate water code for future development needs. This *legal* committee will also be responsible for drafting proposed legislation which the Commission may recommend.

The *tenth* activity or procedure which the Commission has pursued is the holding of regional conferences to tap the thinking and ideas of people at the grass roots. The Commission scheduled eight such conferences as follows: Sioux City, Iowa, June 12 and 13; Spokane, Washington, June 16 and 17; Berkeley, California, June 23 and 24; Denver, Colorado, June 27 and 28; Fayetteville, Arkansas, June 30 and July 1; Columbus, Ohio, July 24; Springfield, Massachusetts, July 25; and Atlanta, Georgia, July 31.

These regional conferences are not designed to take a Gallup poll of local opinion to ascertain how many people are for or against a given proposal, but to give anyone and everyone who wants to be heard a chance to be heard and say what is on his or her mind. Out of these conferences will come numerous suggestions, or recommendations, or ideas which will help the Commission in getting a better understanding and "feel" of conditions and problems in the various regions. The Commission's recommendations should be better balanced and more adequate for sound national policy as a result.

The Final Report

The end product of all of the above activity is the written report of the Commission to President Truman, due not later than December 1, 1950. This report will not be a series of task force or committee reports, but rather one report representing the Commission's combined thinking and recommendations. The reports and materials prepared by the eleven committees and all of the ideas and materials secured through the ten channels indicated will be very helpful to the Commission, but the seven Commissioners together will prepare the report to go to the President.

The Commission has held three-day meetings each month since it was appointed in January. During the latter part of July and early part of August the Commission held a two-week session to work on various phases of the report. They will hold another two-week session the last of August and first part of September. During these sessions and the monthly meetings the Commission has determined areas of agreement and clarified points on which there was disagreement or inadequate information to make possible conclusive decisions.

The Commission has sought the cooperation and assistance of every individual and agency, public or private, that might be able to assist the Commission in its assignment. The time is ripe for a thorough re-appraisal of water resources policy. The Commission hopes that, as a result of its labors, it will be able to recommend policies which, if followed, will result in programs adequate to meet national needs and objectives for a sound and expanding American economy.

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Proposed Water Rights Legislation in Michigan*

SUPPLEMENTAL irrigation is rapidly becoming an important farming practice in many eastern states. These states enjoy a subhumid climate and normally receive sufficient rainfall for ordinary crop growth. But records show that they are affected by seasonal droughts and that limited available supplies of plant moisture often are a critical factor affecting plant growth.

A few farmers in these areas, primarily the rice farmers of the South and some growers of floral, nursery, fruit and truck crops, have been irrigating for years. The post World-War-II period, however, has brought a surge of interest and activity in the use of supplemental irrigation. This current interest stems from several factors. Significant among these are: (1) the development of new types of portable, lightweight irrigation equipment; (2) advances in farm techniques—particularly with fertilizers—that require more moisture for optimum use than is supplied by natural precipitation; and (3) the postwar levels of farm incomes that have both permitted and favored substantial investments in new equipment.

Comprehensive statistics are lacking; but observations indicate that hundreds of farmers have installed equipment for sprinkler irrigation. The trend in many eastern areas is suggested by the situation in Michigan where the estimated number of farm irrigation systems increased from 255 in September 1946 to 1,300 in January 1950. Between 1945 and 1950 the irrigated acreage in Michigan increased twenty-fold from around 2,500 acres to approximately 50,000 acres. Most of this irrigation is found on intensively farmed lands, particularly on lands growing potatoes, truck and fruit crops. Supplemental irrigation, however, is used to some extent in dry seasons on pasture lands and field crops. It also is used by many muck land farmers for frost prevention and wind erosion control purposes.

Approximately 60 percent of the irrigation water used in Michigan comes from lakes, streams and other surface sources. These waters, like those pumped from subsurface sources, are ordinarily pumped onto the land and spread over selected crops through the use of portable pipe and spraying equipment. A farmer's investment in this type of equipment can be high, the amount depending not only on the acreage he irrigates and the extent to which he moves his equipment back and forth over his fields but also on the size and depth of his well or the distance to his supply of surface water. The usual cost of irrigation equipment, excluding wells, on irrigated tracts of from 20 to 60 acres runs from $60 to $100 per acre on Michigan farms.

Because of the cost of irrigation equipment, farmers generally are interested in the economics of supplemental irrigation. Closely associated with this economic problem is the question of water rights—the legal recognition now and in the future of the farmer's right to make use of surface or ground waters for irrigation purposes. At the present time the situation regarding the water rights enjoyed by Michigan irrigators is clouded and confused. A very similar situation exists in many, if not most, other eastern states where there has been little occasion for developing state water codes such as those that govern the appropriation and use of irrigation water in the arid and semi-arid regions of the West.

Considerable thought has been given to the water rights problem in Michigan and a proposal dealing with surface water rights has been drafted for possible introduction in the 1951 legislature. The purpose here is to describe this proposal as a possible approach that may be used in clarifying the rights of farmers to use surface waters for irrigation purposes in subhumid areas.

Present Water Rights Problem

Michigan has no statutory legislation on the subject of irrigation. Such state law on this subject as currently exists is found in the decisions of the courts that interpret the common law doctrine of water use. These decisions may be divided into two groups, those involving the use of ground or sub-

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surface waters and those involving surface waters.[1]

With respect to ground waters the courts now generally hold to the rule of reasonable use.[2] This permits farmers and others considerable freedom in sinking wells on their own lands and in the pumping and ordinary use of ground waters. The rule, however, can be interpreted to prevent wasteful, malicious or other unreasonable water uses, particularly when these have an adverse or injurious effect on others. The courts have indicated that under some circumstances particular water users may be liable to their neighbors for damages if it can be established that their pumping activities have so lowered local water levels as to require the abandonment or deepening of wells previously existent in the vicinity. It is estimated that around 40 per cent of the irrigation systems now used in Michigan draw their water supplies from subsurface or ground sources. The future may well bring an increase in both the number and the proportion of these systems. Should this anticipated increase in ground water use develop, critical problems may arise in some areas. No legislation has as yet been developed to cover this contingency. Eventually, however, it may be desirable to draft a state ground water code that will recognize priorities in private pumping rights, will control the scope of these rights, and possibly will require the flooding of water sinking areas or the return to subsurface strata of waters such as those now pumped up for air conditioning purposes.

The extent and nature of the farmer's legal right to use surface waters for irrigation in Michigan and other eastern states is governed by the riparian doctrine.[3] Under this doctrine land owners have riparian rights when their land is bounded or traversed by a watercourse or body of water. Riparian rights exist without regard to the extent of the ownership holding but they are limited to lands that lie within the natural watershed of the stream, lake, or pond.

Riparian owners can use the waters to which their lands abut for domestic purposes, for floating logs or boats, for generating power, for swimming or bathing, and for certain other purposes. Strictly speaking, they enjoy a right to have the water flow by or through their land undiminished in quantity and unpolluted in quality except that any riparian owner may make whatever use of the water he requires for domestic and household purposes and for the watering of farm animals.

Nearly all courts interpret the riparian doctrine somewhat liberally and permit the use of waters in watercourses, lakes and ponds for various commercial and industrial purposes as well as for domestic and household purposes and for watering livestock. In many states in which the riparian doctrine prevails, the courts have decided that riparian owners have the right to make reasonable use of waters for general crop irrigation. However, the doctrine does not permit the diversion of water for the irrigation of non-riparian lands. In the western states where water is used in irrigating non-riparian lands, it has been necessary either to modify the riparian doctrine or to substitute the appropriation doctrine of water use.

The right of the farmer to use surface waters for irrigation purposes in Michigan has not as yet been fully clarified by the courts. Thus far the state supreme court has considered only one case directly involving irrigation.[4] In this case the court denied the defendant's right to take water for irrigation because such appropriation interfered with the right of lower riparian owners to use the water for domestic, stock, and other riparian purposes. The court indicated in its decision that the volume of water furnished

[1] In common legal practice cases involving surface waters often are divided into those that pertain to (1) waters in natural watercourses and bodies of water, (2) diffused surface waters, and (3) spring and waste waters. Many courts refer to diffused surface waters simply as "surface waters." However, all waters on the surface of the earth are technically surface waters and the waters in streams, lakes, and ponds also are often described as surface waters. In this paper the term "surface waters" is used in its broader sense to apply to waters in streams, lakes, and ponds as well as to diffused surface waters and spring and waste waters. See Wells A. Hutchins, *Selected Problems in the Law of Water Rights in the West*, U. S. Department of Agriculture Misc. Pub. 418, pp. 1-22. The proposed Michigan legislation is commonly referred to as the proposed surface water law and deals primarily with waters in watercourses, lakes, and ponds.

[2] Cf. *Schenk* v. *City of Ann Arbor*, 196 Mich. 75, 163 N.W. 109, 1917; *Bernard* v. *City of St. Louis*, 220 Mich. 159, 189 N.W. 891, 1922. For a discussion of the English doctrine of absolute ownership of percolating waters by the landowner, the American rule of reasonable use by the landowner, and the appropriation doctrine as applied to ground waters, see Hutchins, *op. cit.*, pp. 155-162.

[3] For descriptions of this doctrine see *ibid.*, pp. 38-44; J. R. Long, *A Treatise on the Law of Irrigation*, 2nd edition, p. 66.

[4] *Mastenbrook* v. *Alger*, 110 Mich. 414, 68 N.W. 213 ,1896.

by the stream was barely sufficient to supply the domestic and stock watering needs of the various riparian owners along the stream and that there was not enough water for the defendant to use any part of it in irrigating his land. How the court would decide, were an adequate supply of water available for irrigation, yet remains to be seen. In other cases involving water rights the court has held that (1) riparian owners cannot acquire priority in water use or appropriative rights in Michigan, and (2) owners cannot hold back the flow of streams or appropriate or divert surface waters if downstream riparian owners are adversely affected.

Study of the limited number of Michigan court decisions that relate to surface water rights suggests that the question of irrigation rights is still far from settled. This uncertainty adds to the problems of the farmer who already has invested or who is considering investments in irrigation equipment. Irrigation equipment is costly. The farmer deserves to know whether he will be able to use it once he has acquired it. As matters now stand, however, the farm irrigator takes three risks:

1. The courts have not as yet recognized irrigation as a legal riparian use of surface water. Once a case is brought up, the courts will probably follow the general interpretation of the riparian doctrine used in many states and recognize the reasonable use of riparian waters for irrigation purposes in those cases in which a sufficient supply of water is available. Until the courts act on this point, however, a farm irrigator cannot be certain as to what are his rights.
2. Since there is no legislation defining the irrigator's rights, he is subject to court injunctions issued at the demand of other riparian water users. Such orders would prevent him from using water for irrigation when this use interferes with other riparian uses.
3. Even if irrigation is recognized as an acceptable water use, the irrigator's rights to a stream flow might be lost should someone upstream decide to invest in irrigation equipment and appropriate the water from the stream for his own use. A system of priorities and appropriative rights is needed if the farm irrigator is to enjoy security in his future right to use his irrigation equipment and investment.

If irrigation is to continue to expand in Michigan and other subhumid areas, and if present irrigators are to enjoy reasonable security in their present use of water for irrigation, more attention will have to be given to the legal rights of the irrigator. Special water rights legislation is very definitely needed to clarify these rights and to give farm irrigators the legal sanction they need as farm operators.

Proposed Surface Water Law

To meet this need a proposed surface water law has been drawn up for Michigan and is now being reviewed and discussed by farm groups preparatory to its introduction into the legislature. Because of the complicated nature of the problem, the proposed statute of necessity is somewhat lengthy. Altogether, it includes 33 separate sections. The more important provisions relate to the following points: (1) declaration of state policy with regard to the control and use of water, (2) recognition of existing water use rights, (3) classification of existing and vested water rights, (4) delegation of administrative powers to the Michigan Water Resources Commission, (5) specification of procedures for filing and processing applications for water appropriation rights, (6) definition of the nature of water rights and the gross areas to which they can be applied, (7) provisions for assignment and abandonment of water rights, (8) authorization of future changes in place or purpose of water use, and (9) enforcement provisions.

The proposed act begins with a strong declaration of state policy. This statement concludes, "It is therefore declared to be the policy of the State of Michigan that control of the use of water for all beneficial purposes shall be in the State, which in the exercise of its police powers must take such measures that shall effectuate the best utilization of the water resources of the State."

This policy statement clearly specifies that the state has a very definite interest in its waters and how they are used. It is to the public interest to see that these waters are used for beneficial purposes. In this respect the state recognizes that riparian owners who have been using water in a reasonable manner for navigation, recreation, power, domestic and other riparian purposes should enjoy their rights in the future as they have in the past. It is felt, however, that their rights are qualified and need not extend to the entire surface water supply. The intent of the measure is to reserve to them minimum necessary stream flows or lake levels for the continuance of their beneficial uses of water. Any water over and above

this amount can be appropriated and used for other purposes in the future.

The statement of state policy found in the first section constitutes something of a preamble for the remainder of the proposed law. Its basic ideas are developed in more detail in later sections of the bill. The section which recognizes existing rights, for example, specifies that: "Nothing in this act is intended to impair any existing valid right in the use of water, or to interfere with the continuance of any such right, or to prevent the maintenance of such stream flows or lake levels as are necessary to the reasonable exercise of private vested rights and to the reasonable use of natural streams and lakes for public purposes of recreation, fishing, sanitation, and navigation." A later section specifies: "The right to the beneficial use of water shall not be deemed to include the right to use more water than is necessary for reasonable beneficial purposes nor shall it include the right to resort to unreasonable methods of diversion." The proposal specifically exempts from its provisions all diffused surface waters which farmers may impound and use on their own lands before they enter riparian streams or lakes.

In its classification of vested rights the proposal divides these rights into Class A rights and Class B rights. All riparian owners are recognized to have Class A vested rights to the reasonable beneficial use of the waters to which they are riparian for domestic purposes, power, recreation and fishing. Class B vested rights are granted to those who actually have been applying water "under reasonable methods of diversion to reasonable beneficial use other than in the exercise of Class A vested right." Under this provision the farmers who are now making use of waters for irrigation would acquire a Class B vested right. Because of their vested nature the holders of Class A rights, followed by those of Class B rights, would have first claim on the waters of any lake or stream. Their rights are recognized first and their needs must be filled before any waters can be appropriated or diverted to new uses. The owners of Class A rights need not file claims to their rights. Specific arrangements are made, however, for the filing and recording of claims to Class B rights.

Farmers and others who do not qualify for Class B rights but who wish to appropriate riparian waters for irrigation or other similar uses are authorized, regardless of whether they are riparian or non-riparian owners, to file applications for water rights with the Water Resources Commission. The Commission must accept these applications, record them in the order of their priority, review them, and upon its own motion or the request of interested persons may hold public hearings. So long as the applications for appropriation rights meet the requirements of the law, involve reasonable water uses, and do not impair the vested rights of Class A or Class B users or the rights held by prior appropriators the Commission is required to issue permits for the appropriation of stated volumes of irrigation water. After a reasonable period, during which the irrigator must construct or install his irrigation facilities and begin to use the water under the terms of his permit, he receives a license which recognizes his future water use rights. The rights of these applicants are filed in the order in which their applications are received. Each owner receives a priority right to the supply of water available at that time, this supply being limited to any surplus above that required to fill the needs of Class A and B users and prior appropriators.

Most farm irrigators probably will irrigate only the areas specified in their applications. To permit a certain amount of field rotation, however, the proposed law authorizes the application of water, to "any gross area containing not more than five times the estimated maximum acreage irrigable in one year with the quantity of water authorized to be used." Another provision permits groups of owners who hold water rights to rotate their exercise of these rights so long as this rotation does not have an injurious effect on others. Provisions also are made regarding the location of reservoirs and for authorizing changes in point or points of water diversion. Under this last provision the Commission is authorized, after due consideration, to permit the holders of Class B or appropriation rights to change (1) their points of diversion, (2) the location of their reservoirs, (3) the purpose for which they use the water, or (4) the location of the gross areas on which they are to apply water.

The proposed law recognizes that the water right shall be appurtenant to the gross area of land to which it relates and shall pass as an appurtenance with the title unless it is expressly reserved or separately conveyed. This provision gives individual owners con-

siderable free agency in the retaining, reservation and conveyance of their water rights. The proposed measure also permits the assignment of the water right but specifies that such assignments shall not be binding, except between the parties, unless they are properly recorded and registered.

Inasmuch as the holders of Class B vested rights and the holders of appropriative rights may discontinue their use of these rights in the future, provisions are made for the abandonment of these rights. These rights may be lost to their owners either through intentional abandonment or by nonuse for five consecutive years during which a supply of irrigation water is available and rainfall conditions are such that irrigation is considered desirable. Once declared abandoned, water rights become available for use by other appropriators.

Besides the provisions of the proposed law already discussed, the proposal has a number of sections that spell out certain administrative details. Among these are provisions relating to designation of administrative areas within the state, filing and claim procedures, measures for the protection of fish, prescription and collection of fees, injunctive proceedings, and possible penalties for violation of the act.

The suggested legislation outlined here is yet to be introduced into the legislature. No one claims that the proposal provides a perfect answer to the problems of the farm irrigator. All things considered, however, it does promise him a larger measure of security than he now enjoys. In some cases the proposed law could limit the activities of operators who are now appropriating waters for irrigation. It will require farmers to file on the water rights they need for irrigation. It may call for some bookwork and it definitely will involve a certain amount of inconvenience for many farmers. But this inconvenience will be more than offset by the legal recognition of the farmer's water rights. In this sense the proposed statute might be compared with property insurance—it costs the owner something but at the same time it provides him with a type of protection and security that he needs in carrying on his type of operations.

Limited Modification of Riparian Doctrine

The proposed surface water law represents a conscious attempt to apply and adapt many of the best principles of western irrigation law to the conditions of a subhumid area where the riparian doctrine has been recognized and upheld over a long period and where numerous competing uses for surface waters exist.[5] Except for the provisions relating to gross irrigable area, every major provision in this proposal has been tried and tested in at least one of the western states. Even the classification principle involved in the recognition and classification of Class A and Class B vested rights has something of a precedent in the Oregon water code.

In adapting these principles to Michigan conditions it has not seemed desirable to abrogate the riparian doctrine as has been done in the appropriation doctrine states of the West.[6] Such a procedure would probably be unconstitutional and is hardly warranted in an area where the need for irrigation water was not established until long after the competing uses for domestic, municipal, navigation, power, recreational, industrial, and sanitation purposes had acquired vested rights status.

The right to appropriate waters for irrigation purposes is recognized but it is limited to the surplus waters of the state. In this sense the proposal calls for a modification of the common law riparian doctrine, but a somewhat more limited modification than has been applied in the West. The proposed law is specifically designed to clarify the right of farmers to use surface waters for irrigation. At the same time the right of riparian owners to continue in the reasonable use of their vested rights is clearly recognized and preserved. The proposal merely attempts to make available for appropriation those waters over and above the reasonable minimum necessary stream flows or lake levels needed to support the vested rights of normal riparian owners.

[5] For a discussion of the principles of irrigation law, see Hutchins, *op. cit.*, and Hutchins *et al.*, *Desirable Principles of State Water Legislation*, National Reclamation Association, 1946.

[6] The appropriation doctrine has been completely substituted for the riparian doctrine in the eight states of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming. A modified riparian doctrine that permits reasonable appropriations of water while still accepting the common law riparian doctrine is accepted in the six 100th-meridian states and the three Pacific Coast states. All nine of the modified riparian rights states cover areas that enjoy a sub-humid climate as well as arid and semi-arid lands that require irrigation for crop production.

Desirable as this type of legislation may be, it should be clearly recognized that the legal recognition of the farmer's right to appropriate riparian waters for irrigation will not in and of itself solve the farmer's water problem. The current water rights problem stems from the fact that the available water supply often is insufficient to meet the needs of all users during the drier seasons of the year. The proposed law can do little to increase stream flows or lake levels; but, by spelling out the irrigator's rights, it will open the way for the development of surplus water storage programs that will facilitate the further development of supplemental irrigation practices.

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Farm Land Acquisition Problems in Egypt*

EGYPT is predominantly an agricultural country in which other economic activities, industrial and commercial, as yet provide but limited alternative sources of employment. Seventy-five percent of the twenty million people living in the country rely on agriculture for their livelihood. The nation has a high man-land ratio, about three persons per feddan,[1] and agriculture is definitely overcrowded. Many investigators believe that fifty percent of the agricultural labor force could be considered as surplus labor force. While the economic supply of land in Egypt is highly inelastic, the population of the country continues to increase rapidly. In addition to this, the available agricultural land is distributed unevenly between landowners. About 94 percent of the landowners hold only 34 percent of the agricultural land, while the other 6 percent hold 66 percent of the land.

These facts are responsible for the existence of large numbers of laborers who offer their services for very low wages and tenants who willingly pay the high rents asked by landowners. This situation is scarcely one in which one would expect to find a concept of the agricultural ladder operating in the same sense that many people assume that it should operate in the United States. Actually, the idea of a ladder to ownership—a path that a young farmer can follow in climbing from his status as a laborer and then as a tenant to farm ownership—is almost nonoperative in Egypt.

The great majority of the land owners in Egypt acquire their lands by inheritance or family connections. The would-be owner who lacks special family assistance finds the path to ownership filled with almost insuperable difficulties. It is the purpose of this article to point out some of the more important problems faced by the tenants and farm laborers of Egypt who would like to be owners.

There are three principal tenure groups in Egypt—owners, tenants and laborers. These groups can be subdivided as follows:

Owners:

(1) Owners of debt-free farms
(2) Joint owners of debt-free farms
(3) Owners of mortgaged farms
(4) Joint owners of mortgaged farms
(5) Owners of small debt-free farms who rent in additional land
(6) Owners of small mortgaged farms who rent in additional land

Tenants:

(1) Cash renters
(2) Cash and share renters
(3) Share renters who pay to the owner a fixed amount of the product
(4) Share renters who pay to the owner a percentage of the product

Hired Laborers:

(1) Tamallia[2]
(2) Family laborers
(3) Hired laborers
(4) Migratory laborers

This classification of groups and subgroups implies gradations in financial standings as

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[1] The feddan is the measure of land area in Egypt. It equals 1.038 acres.

[2] Tamillia is the name applied to the permanently-employed laborers found on large estates.

well as independence of control. At the very bottom of this classification is the migratory labor group which represents the most depressed and underprivileged group in the country, while at the top stand the owners of debt-free farms who are usually in a good financial position and who are completely independent so far as control is concerned.

If Egypt were a land with lower land values, lower rents, higher agricultural wages and less population pressure against the land, these classifications could be looked upon as an agricultural ladder which affords opportunities for vertical mobility. As matters stand, however, the Egyptian farm laborer finds it difficult to climb to any higher rung, to say nothing of a climb to ownership. The time that it takes an Egyptian agricultural laborer to accumulate the funds needed to buy even one feddan is almost infinite.

Perhaps a comparison between the price of the agricultural land and the wages of the agricultural laborers in Egypt and the United States will show the wide difference between the two countries in the opportunities of agricultural laborers to become land owners. In 1945 the average per acre value of farm land in the United States was $40.63,[3] while the average farm wage per day without board (in April 1945) was $4.12.[4] This means that in 1945 it took the average farm laborer in the United States the wage of less than ten days to buy one acre. Owing to wide geographic variations, farm wages and agricultural land values varied from state to state. The situation was as follows for selected states:

State	*Average Value per Acre* (1945)	*Wage per Day Without Board* (April 1, 1945)
Iowa	$104.81	$5.75
Montana	8.81	6.50
Mississippi	33.01	2.65
Washington	53.84	7.70

Thus in Iowa, the state with the highest share of the first grade land in the United States, it took the agricultural laborer the wage of about 18 days to buy one acre of land, in Montana it took the wage of less than two days, in Mississippi the wage of about 13 days, and in Washington that of seven days.

In Egypt the picture is far different. According to the investigation of the Fellah Department the average daily wage of agricultural laborers in 1945 was 9 piastres while the average value of one feddan was 300 Egyptian pounds. This means that it took the agricultural laborer in that year the wage of 3333.3 days, or about ten years, to buy one feddan. Since the agricultural laborer can expect to work only about 180 days per year in Egypt, it really requires the full wages of the laborer for a 20-year period to buy one feddan of land. In 1939, a normal year, the situation was worse. The average wage was only three piastres while the average price of land was 150 Egyptian pounds per feddan. Under the assumptions outlined above, it would have taken 27 years of average wages to buy one feddan under 1939 conditions. Under conditions such as these the laborer obviously does not buy land.

Because of extremely high rents, the tenant's opportunity to climb the agricultural ladder in Egypt is scarcely any brighter than the laborer's. The investigations of the Fellah Department of the Egyptian Ministry of Social Affairs reveal that once the tenant has paid his rent he nearly always lacks sufficient resources to pay his production costs and to allow normal wages for himself and his family. Studies of the large estates (where records are kept) and where some of the land is owner-operated while the rest is rented, show that the rents charged are higher than the net output obtained from the land operated by the owner. This is one reason why many capable landowners who reside in rural villages prefer to rent their land to small farmers rather than operate it themselves.

The tenants in Egypt are frequently as bad off as the agricultural laborers. Instead of realizing profits from their rental operations that they can use in climbing the agricultural ladder to ownership, they live miserable lives and often pay out their operator earnings plus part of the normal return on their own labor in the form of high rents, all for the privilege of having a tract of land they can operate.

Since the beginning of this century there has been a general upward trend in land values, wage rates and rental rates. Accurate and reliable figures are not available on all aspects of this trend, but the data available indicate that the trend has favored neither the laborer nor the tenant.

The trend in the real wages of the agricultural laborers is indicated in the following tabulation of average money wages per day

[3] See U. S. Department of Commerce, *Statistical Abstract of the United States 1948*, p. 597.

[4] See U. S. Department of Agriculture, Bureau of Agricultural Economics, *Farm Labor*, April 1945.

for male agricultural laborers, cost of living indices and adjusted "real" wages:

TABLE I.

Year	*Wage (P. T. per Day)* *	*Cost of Living Index*	*Adjusted Wage*
1913.....	4.00	100	4.00
1929.....	6.00	181	3.30
1934.....	2.60	125	2.00
1939.....	3.00	151	2.20
1942–43...	6.00	273	2.20
1944–45...	9.00	370	2.40

* P.T. is the Egyptian Piastre. It equals 0.01 of the £.E. (English pound) which equals $2.87 (1949).

While the average money wage has tended to increase since the beginning of this century, except for the period of the great depression and the years following it, the adjusted average daily wage declined from four piastres in 1913 to two in 1934 and then increased slightly to 2.40 in 1944-45.

The trend in farm rental rates was as follows:

TABLE II.

Year	*Rent* (£.E.)
Ave. for	
1892–1907*.....	3.60
1928.....	10.00
1932.....	5.00
1938–9.....	7.10
1942–3.....	16.00
1943–4.....	18.00
1946–7.....	22.00
1947–8.....	24.00

* Estimate based on cadastral survey.

Although rents are affected by the business cycle and although the sharp increase which took place in this present decade is attributable to World War II conditions, the trend has been definitely upward. Taking 1935-39 as a base, the Fellah Department found that the index number of agricultural income from principal crops rose to 228 in 1944-45 while the index of rents rose to 267.6. Obviously the tenants did not benefit by the boom.

One more point which has a bearing on the matter of acquisition of land is farm credit. The nature of the credit facilities available to farmers in any given country and the use they make of these facilities has a definite affect upon land tenure conditions. In many instances the availability of credit determines whether or not a farmer will be able to climb the agricultural ladder. If he is unable to use past savings in climbing the agricultural ladder, the laborer or tenant may use borrowed funds in his climb, assuming he can find an agency that is willing to lend him the needed amount at the right time and at reasonable rates. In Egypt no governmental agency offers agricultural laborers any kind of credit. Tenants can get production loans from the Agricultural Credit Bank. But this process involves considerable red tape and they normally prefer to borrow from merchants and money lenders at higher interest rates rather than go to one of the branches of the bank. There are no tenant-purchase loans such as those offered by the Farmers Home Administration of the United States Department of Agriculture. A loan system designed for the purpose of making owners out of farm tenants and other eligible laborers is badly needed.

From the aforementioned facts, it may be concluded that the problem of acquiring farm ownership is surrounded with almost insuperable barriers for the agricultural laborers and tenants in Egypt. Only those intermediaries who frequently appear on the stage between landowners and small tenants can accumulate the funds which will enable them to become landowners. Aside from them, acquisition of land is possible to those who make fortunes in some other field and to those who are fortunate enough to inherit farm holdings.

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Population Forecasts by Simple Methodology†

IN recent times there has been a steadily increasing interest in population forecasts and in the most effective procedures for carrying out intelligent demographic policies. The present shortage of workers makes it desirable to have a reliable survey of the future population development before one makes plans for further development of industry and other occupations. For the towns, in order to accomplish an appropriate solution of many planning problems, it is of great significance that one have fairly well founded opinions about the size of the community for which one is planning. This factor is of special importance in the rebuilding of the war-devastated towns, where very large expenditures of money are at stake.

1. Population

The numerical changes in the population of a district depend directly on birth rate, death rate and migration: thus births minus deaths plus immigration minus emigration equals population growth. Since, in our times, international migration is negligible, one need not take into account migration to and from states.

The forecasts for the development of Norwegian population up to 1975 have been worked out in the Statistical Central Bureau by Dr. Julie Backer (Statistiske Meddelelser, Oslo, 1946, No. 10-12) and are based on two alternatives for births per 1,000 women in different age groups: i.e., (1), figures as for 1936-40; and (2), figures as for 1940-43, using the death rates in the various age groups for 1936-40 (figures for 1940-43 not available). Dealing thus with a whole country one can calculate the population for a definite future time by using different alternatives for future birth rate and death rate, alternatives which are based on our knowledge of former conditions. If one tries to make a corresponding forecast for a town or a small district, one must stress primarily the evaluation of the future balance of local immigration and emigration. The migration movements depend first of all on the difference in employment possibilities and living conditions between two places. The future development of population is the result of the inter-relation of two groups of factors, one demographic and the other economic (and sociologic). Obviously, the smaller the district the more decisive are the economic factors.

The author has had occasion to examine a series of Swedish geographical research studies in urban population forecasts which were carried out by Professor W. William-Olsson of the School of Business Administration in Stockholm and by some of his students. The method of forecasting population of towns (and other small districts) which is described in the following pages is based for the most part on the methods used in Sweden. However, the deficiency of official statistics in Norway is one of the factors making it difficult to use the same methods here in Norway.

The research tools to be used as a basis for the forecast may be divided into three main groups: population, economy, and town structure. In discussing these three elements a special importance must be attached to three principles. First and foremost, it is necessary to give a clear picture, as complete and up-to-date as possible, of the facts and conditions in the town which is being studied. One must also clarify the changes which have taken place in recent times, and try to bring to light trends which may continue; but knowledge of what has taken place is the principal means of foreseeing future conditions. Finally, comparisons with other towns must be made. Statistics and information mean very little if studied alone but, compared and contrasted with conditions in other communities, are enlightening.

† *Editorial Note:* This paper was submitted through Professor Fridtjov Isachsen of the Department of Geography of the University of Oslo who, several years ago, spent a winter on the campus of the University of Wisconsin. He became interested in *Land Economics* and before he returned to Norway ordered a complete set of the twenty-five volumes. In submitting this contribution Professor Isachsen wrote: "Here is a small paper on population forecasts on a problem that has had considerable practical importance for post-war reconstruction efforts in my country. We have already spent many tough hours on the language but we are sure it can be improved and eased up here and there." Our editing has been kept at a minimum so that the author's own style might come through.

The first two factors, the town's population and its economy, are intimately dependent on and related to the conditions in the hinterland. Before one studies the town one ought, therefore, to have some knowledge of the demographic and economic-geographic conditions in the urban area or "sphere of influence." One should try to place the town in this setting and appreciate the factors which have made this particular place the "town" of the district.

Under the heading, *population*, one should study the development of the population of of the town and its suburbs, sex and age groups, the proportion of married people, and other pertinent demographic conditions. As already stated, population development is determined by the number of births and deaths and by migration. Although it is not practicable to estimate even roughly the extent of future migration without further information, one can calculate the death rate with a high degree of accuracy (leaving out of consideration atomic warfare, revolutionary progress in medical science, etc.), and also formulate reasonable alternative predictions on the future birth rate. Therefore, it is best to base calculations on the latest population figures, ignoring at first changes due to migration. Thus immigration and emigration are assumed to balance in all age groups. We can, with advantage, calculate figures for the next 5-20 years, but it is of little value to carry the forecast further.

The number of deaths can be calculated on the basis of the latest death rate figures for the whole country, as local variations are presumably negligible. The nature of the available statistical material forces one to make the calculations of the future birth rate by a more simple method than has been utilized in the state forecast of the Statistical Central Bureau. Using as one alternative the local birth rate for the period, 1941-1945, per 1,000 women in the age group 20-40, and for the other alternative the corresponding figure for the mid-1930's (when the birth rate reached a minimum), one can safely expect that the correct value will lie between these two extremes, most likely close to the postwar figures. It would have been more correct to consider the birth rate in relation to the number of women in each age group, but to establish such a detailed distribution for any single community would require much work, even if such a calculation were possible. One may also assume that the fertility for the different age groups is the same as for the whole country, but it is not so certain that the possible advantages of such a more differentiated forecast method would compensate for the work one saves by giving the birth rate in proportion to all women between 20 and 40 years in one group. In the last instance, the forecast depends on conjecture, and there is, therefore, little purpose in incurring too much work in complicated calculations. With respect to the second factor in population development, future migration, one cannot expect to attain even a fairly well founded judgment without having obtained knowledge of the basis of livelihood in the town, in the rest of the country, and perhaps even in other countries as well, insofar as it directly influences development in the town.

It is equally essential to have knowledge of previous migration, particularly regarding places from which people have come and where those who left have gone. It is important to know in which districts there has been an excess of immigration into the community and in which districts there has been a net loss. By comparing the emigration (surplus) in the hinterland communities with the population figures for those communities one can form a reasonably accurate picture of the area as a source of labour for the town. A recent investigation in Bod, in northern Norway, 1920-49, suggests that the immigrant, from year to year, come from very much the same districts. Most of the communes did not keep a population register before March 1st, 1943, and so one is forced to study the facts from this date on, or from the postwar years, if one has reason to distrust the material available for the occupation years. Side by side with geographical features concerning migration, the sex, age and occupation distributions of the migrants should be investigated. The last point is the weakest in the analysis, as the information from individual migration reports is not always sufficiently detailed, and this is the only material available.

The Statistical Central Bureau has undertaken some analysis based on the folk register migration reports. This will aid the study of migration movements considerably, not the least because one will get a better basis for comparison between different places. Meanwhile, essential information is still dependent on the primary material.

II. Economy

The industries must be studied one by one, and as far as possible support the study by official statistics and other available information. Some of the factors contributing to future developments of the community are functionally associated with specific industries and must be studied in close connection with these industries. For instance, passenger traffic and retail trade are intimately related, as are goods traffic, and wholesale business. On the other hand, availability of electric power and supply of labour naturally should be examined separately, before inquiry is made into the individual means of livelihood. As an introduction, the town's occupations according to census should be studied in order to find out which branches are of greatest importance. This becomes clearer if compared and contrasted with restrictions on other towns.

It is easy to find statistical material to illustrate development in the various occupation branches. The census reports deal only with the principal occupational groups, and these are not subdivided for the individual communes. Furthermore, such reports are generally fairly old. The Statistical Central Bureau's production figures give, among other things, the average employment in Norway in each branch of industry for every year since 1927. Corresponding reports for lesser geographical units, however, have not been published, but for more important occupational groups it may be worth while for the individual research student to invest in the extra labour required to copy these detailed reports, at least for years which may be considered most representative. By using a logarithmic scale, for example, one may illustrate by curves the development in the different branches of employment in the town. These can be used to show comparisons with corresponding curves for the whole country. On the whole, the extensive use of diagrams and other forms of graphical representation is to be recommended. In this way one makes rather difficult and complicated material clearer and more accessible for oneself and for others who will use it.

Since 1940 statistics of the Employment Bureau (Arbeidsdirektoratet) have been available. Here data for each commune also are available, but have not been printed. For earlier years, one must, in addition to the methods mentioned above, manage as best one can with what one can procure from factory inspection reports, trade unions, and with information from individual firms. One must, of course, stress the importance of interviews with local businessmen and city managers, but only in smaller places can one hope to achieve a complete picture in this way.

By interviews knowledge is gained of the conditions which brought about the rise in the various industries and of the more important phases of industrial operations: need for sites, labour, electric power and raw materials, transport facilities, production and sales. The last point is especially important. A town lives on the money which comes in from the outside world, by its export of goods and services. If we can divide up employment in the various occupations into those who work for the town's own population (secondary production) and those who work for the rest of the country and for export (primary production), we have a good basis for the evaluation of prospects for future expansion. This method is explained very clearly in an interesting article by architect Fred Forbat in the Swedish journal, *Plan*, 1948, No. 2.

For employment and volume of commerce one can find even less statistical material, but this is not such a great drawback as in industry, because the possibilities for expansion in commerce are limited and more easily comprehended than in industry. Emphasis should be laid on a study of the trading and tributary areas in the various branches of the wholesale and retail business. For smaller towns it is possible by investigation of the customers registered with the most important merchants to get exact information about wholesale trade, suitable for cartographical representation. For retail trade one is reduced to interviews with shopkeepers on the one hand and with customers in the district on the other. The goods traffic by railway, boat, and truck is an important part of the background for wholesale trade and ought, therefore, to be studied in this connection. The district for retail trade is primarily determined by the traffic facilities in the surrounding country, so for this point one will profit from an investigation of traveling times, communication frequency and the volume of passenger traffic along the various transportation lines. The traffic with return and

commuting tickets is of especial interest as it may help to delimit the commuting area.

The remaining occupations are usually of less interest and can be treated more superficially. However, even for activities other than trade it may be interesting to undertake hinterland studies. It is useful to know to what degree changes in the age structure of the population react on the number of pensioners and others who are no longer working.

Besides the economy of the city, living conditions are equally essential for evaluating future development. Here co-operation with sociologists is desirable. Some things, however, may be revealed by the usual geographical methods, with the help of statistics and other quantitative data. Thus distribution of population and its fluctuations, housing standards and variations, geographical distribution of the places of work and the commuting areas, with special emphasis on the time required for travel to and from work are all significant factors. The possibilities for recreation should not be overlooked. The last point is a decisive factor with many emigrants, especially women, who usually form about two-thirds of the immigrants to towns.

III. The Forecast

Having in this way formed as complete a picture as possible of the activity and the life of the town being studied the forecast is ready for formulation. It is not possible to work out a forecast by means of mathematical calculations. Ultimately one must guess, but, of course, the more one is acquainted with the town, the better the chances that the guesses will come close to actual development. Therefore one should not be afraid to collect material which may seem somewhat irrelevant. It may have its signficance in broadening one's knowledge of the town and its life. There is no short cut to a population forecast.

Using one's knowledge of the conditions in the individual occupations one makes forecasts for the development in employment in each branch. By division of the forecasts in this way greater probable accuracy is achieved. A figure too low in one group may thus be counterbalanced by a figure too high in another. In the forecast special consideration should be given to the former development, to general trends in the country and to the possibilities of marketing. Here use is made of knowledge of the distribution of the occupations in primary and secondary production as defined above. Calculations for many branches may be based on more general experience of the development in modern society. As examples mention can be made of the fact that industrial manufacturing is constantly taking over fields which were previously in the hands of craftsmen or individual householders; that communications are constantly being improved; and that youth is constantly having a longer period of education, etc.

The figures obtained by this method must be correlated with what we know about the relation between the gainfully employed and the total population. By comparing the the population forecast for occupations with the probable development of "stationary" population (the population estimated without taking migration into account) one is likely to end with discrepancy between the figures, which (if the figures are correct) can then be regarded as a measure of possible future migration. The next step is to judge whether or not an immigration or emigration surplus of that size can be expected. Here the knowledge obtained about demographic and economic conditions in the migration hinterland can be used. The final forecast will be a compromise between the different evaluations. It ought to be elastic in form and intended, after a time, to be considered again and revised on the basis of up-to-date experience. Preferably one should also take into consideration possible expansion of the town area, and not be strictly limited to the present administrative area. For the "natural town area" may have a considerably larger area and greater population.

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Book Reviews

Citrus Fruit Rates.: Development and Economic Appraisal. By T. C. Bigham and M. J. Roberts. University of Florida Press, 1950.

While railroad class rates have been fairly well explored, we lack information on commodity rates, under which 80% or more of railroad freight moves. In this slim volume Professors Bigham and Roberts have brought together, following a brief discussion of the general nature of production and marketing problems of citrus fruit, an excellent discussion of the historical evolution and present relationships of railroad commodity rates on citrus fruits from the three important growing states: California, Texas, and Florida. The development of a perspective on freight rates from the massive detail of the tariff is a difficult and time-consuming task, as is the searching out of important Interstate Commerce Commission decisions.

The authors conclude that influence of the Commission, however, has been of considerably less significance in the molding of the citrus rate structure than the competitive efforts of the producing areas and the carriers serving those areas to reach the northeastern markets. Nevertheless, while the Texas rate structure with its fourth section departures on rates to the North Atlantic ports is clearly a competitive structure, the evidence cited by the authors seems to indicate competition on the general level of rates from California and Florida, but a considerable degree of independence in the evolution of each structure. The California rates follow what is essentially the standard pattern for transcontinental rates—enormous areas, both at origin and destination, blanketed with a single rate. While the rates on each commodity show their own unique variants, this blanketing technique remains essentially unchanged since the last century and is the product of intercarrier competition. Florida citrus rates, on the other hand, were placed on a distance basis (40% of first class) by the Interstate Commerce Commission in 1928, despite the protests of Florida growers who would have liked a blanket to Official Territory as have the California growers. Thus the structure of citrus rates from Florida and California would seem to reflect differing theories of rate-making, rather than competitive influences. Rates from Florida reflect the Commission's increasing preoccupation with distance as an important rate-making factor, while California rates remain on a commercial basis designed to provide not only the transcontinental lines but the north-south carriers of the plains and prairies as well with rate equality at each eastern market. Citrus rates from Florida and California are not, then, unique among rates from those areas. Each conforms to the standard regional pattern.

Texas rates, however, appear to be especially developed for citrus, designed to prevent Texas rates to Official Territory from exceeding those from Florida by too large a margin. Perhaps this commercial structure became necessary by the late appearance of Texas as a citrus-producing area since the Commission has prescribed distance-related class rates in the Southwest as well as in the Southeast.

The excellent history and description of the present rate pattern occupies about the first three-fourths of the study. In the final chapters, there seems to have been some change in the authors' perspective. Reasonably, Floridans are interested in promoting the sale of Florida citrus. It is also reasonable to suppose that an increase in the freight rates on citrus from California, which (like the rates on nearly all traditional specialties of California) are low measured by almost any standard of comparison, would improve the competitive position of the Florida product. But while lower prices and improved resource allocation are not inconceivable consequences of such an increase, in advocating its social desirability the authors implicitly utilize rather specialized assumptions, evidence in support of which is not always presented in this volume. For example, if rate on citrus from California were raised: "The volume of traffic from Florida would rise, transportation rates would probably drop, and the price of Florida oranges would be likely to fall in the long-run, or increase less,

thus enabling consumers to spend less for oranges." (p. 101).

Despite the regional plea, which contrasts rather sharply with the evident scholarship of the body of the work, the authors have made a valuable contribution to our understanding of a commodity rate structure. It is to be hoped that additional studies of this nature will be forthcoming in the future.

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The Socialized Agriculture of the USSR. By Naum Jasny. Stanford, California: Stanford University Press, 1949. pp. 770, plus charts and tables. $7.50.

This book presents a study and analysis of the most important area of Soviet economy —its agriculture. The author has collected all materials with care and he gives a realistic picture of agriculture in USSR. The work done by the author was not simply that of collecting data from official sources.

By careful analysis and selection of materials he has avoided a biased or partisan picture. This was not an easy task. One must always remember that, in the Soviet Union, especially after 1928-1929, the slogan was "Soviet Statistic is in service of Socialism" and is helping the "socialist construction" (p. 9). It means that all data must prove and only prove the right way of the Party Line. The most disturbing innovation, as mentioned by Mr. Jasny, is the so-called "biological yield" method of estimating crops. The biological yield was thought as the yield which could be obtained—the probable or theoretical yield in the field. Obviously, this method will give higher figures (about 25%) than would be so if the normal method of determining what quantities were harvested were used. Naum Jasny quotes from the *Course of Agricultural Statistics* (Moscow: 1945), order of the government and Party of December 6, 1942, which forbids the collection of data on the quantity of grain actually threshed "as distorting the picture of actual condition of the crop."

If we add that the order of the Presidium of the Supreme Soviet USSR of June 9, 1947 states that "disclosure of any information of an economic nature, which is declared secret by the Council of Ministers USSR is punishable by 8 to 12 years of concentration camp" and that, as observed by Naum Jasny, in the Soviet Union everything not issued specifically for disclosure is certainly treated as "declared secret," we have the complete picture. Notwithstanding such difficulties and handicaps the author has collected very impressive statistical material, which gives the true picture about the complete failure of the reconstruction of agriculture on new bases so loudly praised by Soviet official sources.

Very interesting is the part of the book which discusses natural resources and population of USSR. The viewpoint of the author is different from the popular one about unlimited possibilities of agriculture in USSR. The author shows the limiting factors (soils, climate). After a short review of the prerevolution conditions he analyzes the main thesis—the collectivization drive, the five-year plans and the effect of such management on the entire economy of USSR. The rich statistical material makes the conclusions of the author especially valuable and significant. The author states that the results of the first Plan were that millions of people were dying from hunger at the end of the first period when, according to The Plan, the whole population should have enjoyed a substantially improved diet.

The second, third and fourth Plans also failed to approach their objectives. The greatest achievement attained after twenty years of experiment of socialized agriculture was the attainment of the precollectivization levels in some phases of production levels.

The data about consumption gives a very dark picture. On the basis of them, Naum Jasny speaks about "near starvation rations by all standards, except such as prevail in India or China."

The work of Naum Jasny gives a complete picture of socialized production—grain, technical crops, vegetables, feed, livestock, marketing, consumption and exports.

The conclusion of the author on the possible future of socialized agriculture is expressed thus: "The agriculture potential is far too small to support the present industrial output and the large urban population associated with this. A semblance of balance is brought about by ever-increasing compulsion. It is difficult to conceive the present set-up a permanent one. The collective-farm system

as it is organized and operated in the Union, is certainly incompatible with any other political system. No other regime would have the military-economic power to enforce it. Even a weakening of the political power would inevitably disturb the balance if not lead to the collapse of the collective farm system." (p. 38)

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PUBLICATIONS RECEIVED

The Hoover Commission Report on Organization of the Executive Branch of the Government. New York 18, New York: McGraw-Hill Book Co., Inc., 1950. pp. 503. $3.75. Contains the official report of the Commission on Organization of the Executive Branch of the Government. Plucked from the heart of a vast body of "task force" research, it has also been stripped of the dissents, additional comments, and the minority views of the various commissioners. It presents in convenient, manageable form only the essence of the Commission's findings.

Transport and Communications Review. A bi-monthly publication of the Department of Economic Affairs, United Nations. Sales Agent in the United States: International Documents Service, Columbia University Press. This publication supersedes the *Monthly Summary of Important Events in the Field of Transport and Communications.* It provides current information concerning transport and communications; but, more importantly, it provides a conspectus of the activities of the United Nations, specialized agencies and non-governmental organizations in the field of transport and communications. Serves as a medium for the publication of special studies of transport and communications, particularly such as relate to the co-ordination of the activities of the various international agencies, and problems of common concern to them. Its bibliographies are comprehensive. Annual subscription, $3.50.

United Nations Documents Index. A monthly index to documents by subject of all publications of the United Nations and of the specialized agencies received by the United Nations Library, except restricted (confidential) materials and internal papers. Each issue contains: (1) introductory material concerning distribution, sales and other pertinent items, (2) a list of documents, arranged by symbol, followed by lists for each of the specialized agencies, and (3) a subject index in one alphabet referring to all of these documents. The subject index is cumulated annually. Obtainable from International Documents Service, Columbia University Press. First issue February 1950.

Our Landed Heritage: The Public Domain, 1776-1936. By Roy M. Robbins. (Published 1942 by Princeton University Press) Reprinted 1950 by Peter Smith, Publisher, 321 Fifth Avenue, New York 16, New York. pp. 450. $5.50. Out of print for several years, this book had become increasingly scarce.

The Ownership of Small Private Forest-Land Holdings in 23 New England Towns. By Solon Barraclough and James C. Rettie. Upper Darby, Pennsylvania: Northeastern Forest Experiment Station, Forest Service, U. S. Department of Agriculture. Agr. Expt. Station Paper No. 34. pp. 32.

Principles of Engineering Economy. By Eugene L. Grant. New York: The Ronald Press Co., third edition. pp. 596. $5.00. 1950.